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ABSTRACT

A summary of the Outcomes Structure developed by the National Center for Higher Education Management Systems (NCHEMS) is presented. The Outcomes Structure consists of three dimensions: those affected by the outcome (the audience); the type of outcome; and when the outcome occurs or is expected to occur (time). Potential uses of the Outcomes Structure are considered: communication; stimulation; research; and planning, management, and evaluation (e.g., needs assessment; goal identification, assessment, and translation). Guidelines are provided for using the structure to accomplish the following processes: generating lists of priority outcomes, classifying outcomes, and storing and retrieving outcomes information. Suggestions to help trainers and others orient their campus to the Outcomes Structure are included. Appendices include: the coding scheme for the structure, definitions and outcome measure or indicator examples for the type-of-outcome subcategories, an example of outcomes classified with the structure using outcome statements from the NCHEMS Outcomes Inventory, possible copy for a brochure introducing outcomes concepts and the Outcomes Structure; questions and criticisms of the structure posed by particular reviewers and responses from the developers of the structure; and materials for campus orientation workshops. (SW)

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THE OUTCOMES STRUCTURE: AN OVERVIEW AND PROCEDURES FOR APPLYING IT IN POSTSECONDARY EDUCATION INSTITUTIONS

Oscar T. Lenning

1977

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TABLE OF CONTENTS

List of Tables vii

List of Figures vii

Preface ix

Introduction 1

Part I — An Overview of the NCHEMS Outcomes Structure 3

The Audience Dimension 4
The Type-of-Outcome Dimension 4
The Time Dimension 8

Part II — The Potential Uses of the Outcomes Structure 9

1. Communication 9
2. Stimulation 9
3. Planning, Management, and Evaluation 10
   A. Needs Assessment 11
   B. Goal Identification 11
   C. Goal Assessment 11
   D. Goal Translation 12
   E. Allocation and Utilization Planning and Management 12
   F. Evaluation 13
4. Research 13

Part III — Guidelines for Using the Outcomes Structure to Accomplish Three Basic Processes 15

Process 1: Generating Lists of Priority Outcomes 15
Outcomes for Whom? 15
What Outcomes? 17
When Will the Outcomes Occur? 24
Process 2: Classifying Outcomes 24
Process 3. Storing and Retrieving Outcomes Information 28

Part IV — Orienting Institutional and Program Faculty and Staff to the Outcomes Structure and Training Them in Its Use 31

1. Do Your Homework 31
2. Prepare Draft Copy for a Brief Brochure That Effectively Introduces Relevant Outcomes Concepts and the Structure 32
3. Prepare Yourself to Respond to Criticisms That Might Be Raised 32
4. Get the Concurrence of Top-Level Management about the Need to Proceed Further 32

TABLE OF CONTENTS (Continued)

5. Develop Preliminary Plans and Materials for a Campus Orientation Workshop 32
6. Try Out Your Ideas and Draft Materials on Trusted Friends 34
7. Establish an "Exploration and Planning" Committee concerning a Campus Orientation Effort 34
8. Reevaluate Your Ideas, Using the Committee, and Then Complete Plans and Materials 34
9. Distribute Brochures and Conduct Workshops as Planned—Then Evaluate 35
10. Make Available and Publicize the Availability of Follow-Up Application Assistance 35

Appendix A — The Coding Scheme for the Structure 37

Appendix B — Definitions and Outcome Measure or Indicator Examples for the Type-of-Outcome Subcategories 39

Appendix C — An Example of Outcomes Classified with the *Structure* Using Outcome Statements from the NCHEMS *Outcomes Inventory* 53

Appendix D — Possible Copy for a Brochure or Flier Introducing Outcomes Concepts and the Outcomes Structure 55

Appendix E — Important Questions and Criticisms of the Outcomes Structure Posed by Particular Reviewers and Responses by the Developers of the Structure 59

Appendix F — Some Materials for Possible Use at the Campus Orientation Workshops 61

References 79

LIST OF TABLES

Table 1 — Major Categories of the "Audience" Dimension 4

Table 2 — Subcategories of the "Audience" Dimension..... 5

Table 3 — The Major Categories of the "Type-of-Outcome" Dimension..... 6

Table 4 — Coded Listing of the Second- and Third-Level Subcategories for Each First-Level Category of the Type-of-Outcome Dimension..... 7

Table 5 — Taxonomy of Times to Consider for Collecting Undergraduate Student Outcomes Data Using Survey Questionnaires 8

LIST OF FIGURES

Figure 1 — The Audience Sheets of the Political Science Department Curriculum Committee at Alpha College After They Had Completed Step 6 18

Figure 2 — The Audience Sheets of the Political Science Curriculum Committee at Alpha College After They Had Completed Step 7 19

Figure 3 — The Audience Sheets of the Political Science Curriculum Committee at Alpha College After They Had Completed Step 9 21

Figure 4 — The First Page of the Outcome List for Students Majoring in Political Science That Had Been Developed by the Political Science Curriculum Committee at Alpha College at the Completion of Step 11 23

Figure 5 — The First Page of the Outcome List for Students Majoring in Political Science That Had Been Developed by the Political Science Curriculum Committee at Alpha College at the Completion of the Final Step, Step 13..... 25

Figure 6 — Cautions and Potential Problems with the NCHEMS Outcomes Structure That Were Mentioned by Various Interviewees in the CASC/NCHEMS Project..... 33

PREFACE

All the major activities conducted by administrators, faculty, and student personnel workers in postsecondary education institutions are, presumably, aimed toward bringing about certain kinds of "educational outcomes." The activities of planning, budgeting, management, evaluation, research, scholarship, instruction, and other developmental activities for students, and even staff development, all have educational outcomes as a primary focus. Other groups within an educational institution—such as, the secretarial staff and the computer operators—are also expected to contribute to various educational outcomes.

In this "age of accountability" administrators and others have been especially concerned about educational outcomes and their measurement. Postsecondary institutions are being faced with increasing pressures to define better "what they are all about," and to communicate better their purposes and goals to many different audiences. Institutions are also being called on to provide factual evidence that they and their programs are providing the benefits that were intended, and that these outcomes are being produced in a cost-effective manner. Because of the important needs in the area of educational outcomes, NCHEMS has devoted major resources and efforts over the last five years toward developing procedures and materials to help postsecondary education institutions collect and use outcomes information. In 1973 an Inventory of Outcome Variables and Measures was published. In 1975, the *Outcome Measures and Procedures Manual* was published, giving standard definitions and alternative data acquisition procedures for approximately 50 measures that different postsecondary education decision makers (including state legislators) said were most important for their needs. The most recent development is the NCHEMS Outcomes Structure.

This document presents an overview of the NCHEMS Outcomes Structure, and then provides some basic procedures for using the Structure that can have important, practical impacts for an institution, program, or other use context. The Outcomes Structure is a system designed to serve as a framework for organizing information in an effective way for purposes of classification, analysis, and decision making. It rests upon significant bodies of previous work, its practical application has been tested in a preliminary way at one public university and eight private colleges, it has been formally reacted to by a diverse group of over 100 people, and it is intended to continue its development as time passes.

The current document is designed specifically for those who are trying to introduce and orient the people on their campus to the Outcomes Structure and its potential, and to train people in how to apply or use it. It also is expected to be of day-to-day use to administrators, faculty, and other decision makers in postsecondary education institutions. In addition, many of the general procedures presented here are believed to have some applicability to needs of program and resource planners at other levels within postsecondary education, for example, planners at the state and federal levels and planners for groups or systems of institutions.

This is the second of two documents presenting the NCHEMS Outcomes Structure. The first one gives an *in-depth* discussion of the Structure, its rationale, its development, and its underlying empirical support.* It was prepared primarily for use by those wanting a detailed description and conceptual discussion of the Outcomes Structure and an in-depth presentation of the concept of an "educational outcome," including researchers and administrators or faculty specializing in outcomes. *A number of those reviewing drafts of both*

* Oscar T. Lenning, Yong S. Lee, Sidney S. Micek, and Allan L. Service, *A Structure for the Outcomes of Postsecondary Education* (Boulder, Colo.: National Center for Higher Education Management Systems, 1977).

documents expressed the opinion that many to whom this current document is aimed, would also find the first document of interest and use as a supplemental source, and that it should be read prior to reading this document.

The procedures discussed in this document are based on logic and limited, preliminary tests. Although these preliminary tests obtained a number of very positive results, the real value of the Structure will not be known until it receives widespread application. As experience with using the Structure in many different contexts occurs, a revised version of this document will be published to report any insights gained and any new procedures or techniques found to be useful.

Many of the people acknowledged in the in-depth conceptual document referred to above also reviewed an earlier draft of this document, provided helpful suggestions, and in other ways contributed to the development of this document. Appreciation is hereby again extended to them, with special acknowledgment and thanks going to George Barton, Cathleen Bower, Edward Cooper, Jean Endo, Sidney Micek, Edward Myers, Robert Passmore, Nancy Renkiewicz, David Witmer, and participants in the CASC/NCHEMS project—including Task Force members who made campus visits and the campuses where the Structure was tried out.

INTRODUCTION

Having a wide variety of outcomes information without any structure is analogous to possessing a file cabinet in which the contents are arranged randomly. Similarly, without agreement on a common language and context for outcomes, information about outcomes can be misunderstood or be seriously misleading, and it becomes difficult for institutional officials to communicate succinctly how their institution and program differs from its counterparts. An effective outcomes structure provides such a common language.

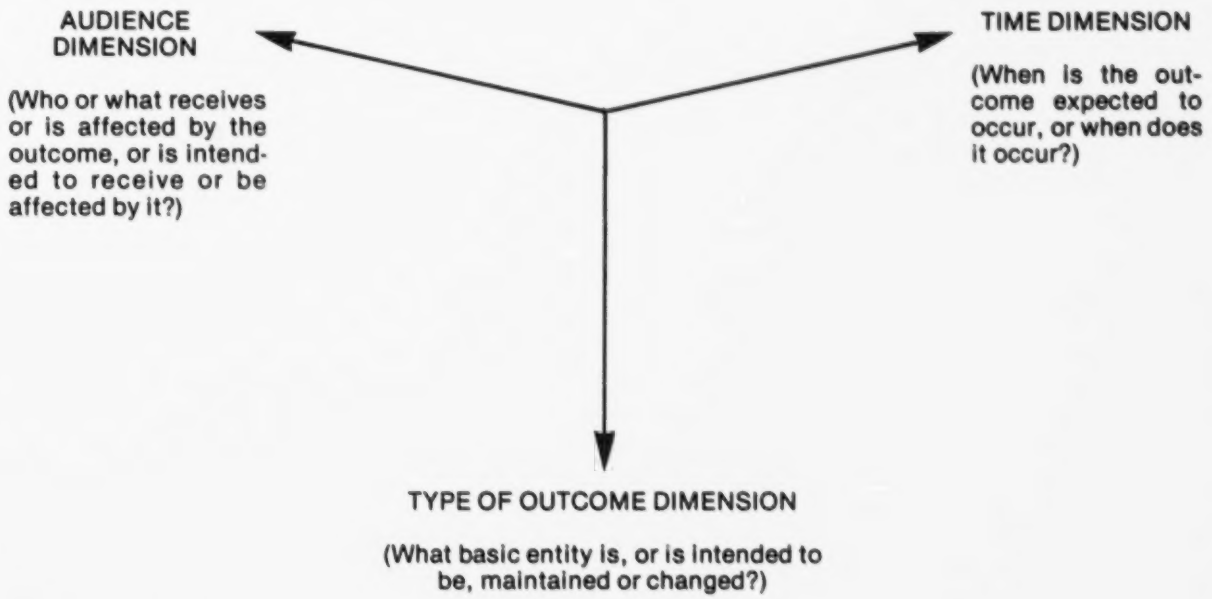
The sheer volume of potential outcomes information in postsecondary education poses a significant barrier to using outcome information in institutional planning and management. Although a number of attempts have been made to develop structural systems for organizing outcomes information, they have been inadequate for meeting the practical need for comprehensiveness and institution-wide use in postsecondary education. Because of the limitations in the state of the art and the important planning and management needs that exist in this area for postsecondary education, an NCHEMS project was conceived and executed that aimed to: (1) develop a system that could effectively organize information about the full range of potential postsecondary education outcomes for purposes of classification, analysis, and decision making, and (2) develop an extensive set of standard definitions for the different types of educational outcomes. After more than two years of concentrated work, an Outcomes Structure resulted that reviewers outside NCHEMS feel has potential for being of use to postsecondary education decision makers in such areas as identifying educational needs, developing goals, translating goals into more concrete objectives, evaluating institutions and their programs, and so forth. Furthermore, preliminary tests of the Structure at one public university and eight small private colleges were quite encouraging, as reported in the base document that gives in-depth information about the Structure, its development, and its underlying empirical support (Lenning, Lee, Micek, and Service, 1977). Nevertheless, it is expected that improvements will be made in the Structure as a result of its use within different types of institutions and various use contexts within those institutions.

The purpose of this document is specifically to provide guidance for those wishing to orient people to the Structure and train them in its use. The first three parts provide information about the Structure and its use which should also be helpful to administrators, faculty, and others on campus who wish to try using the Outcomes Structure in a practical manner. Part I presents an overview of the Structure and its components. Part II describes in some detail the specific practical uses perceived for the Structure in postsecondary education planning, management, evaluation, and other contexts. Then, Part III lists step-by-step procedures for accomplishing three basic processes that allow the Structure to be applied as indicated in Part II. Finally, Part IV—which is not aimed at users directly, as are the first three parts—assists trainers and others who wish to orient people on their campus to the Structure and its use.

PART I
AN OVERVIEW OF THE NCHEMS OUTCOMES STRUCTURE

Postsecondary education outcomes are the end results of the processes that occur within postsecondary education institutions and programs. They include both the direct results of these processes and any short-term and long-term consequences of those direct results. Furthermore, some of them may be intended outcomes while others are unintended—and while outcomes are generically neutral, people will be attaching positive and/or negative values to them. In using the NCHEMS Outcomes Structure, information about outcomes is organized according to three dimensions: (1) the persons, groups, or things that receive and/or are affected by the outcome(s) of concern, or that are intended to receive or be affected by it; (2) whether or not the outcome involves a change in status—maintenance versus change—and the basic, specific entity that is maintained or changed; and (3) when the outcome occurs or is intended or expected to occur. These dimensions have been named "audience," "type-of-outcome," and "time," respectively, and each (except for time) has been assigned a number of specifically defined categories and subcategories. It is intended that those dimensions and categories not of serious concern to a particular user of the Structure will be ignored, or will be modified and adapted to better meet local needs and situations. (The same is true of the various procedures for using the Structure that are described later in this document.)

The Outcomes Structure is illustrated graphically below. For keeping straight the three dimensions, it may help to talk in terms of three Ws—who, what, and when. *Who* is receiving or being affected by *what* outcomes and *when*?


AUDIENCE DIMENSION
(Who or what receives or is affected by the outcome, or is intended to receive or be affected by it?)
TIME DIMENSION
(When is the outcome expected to occur, or when does it occur?)
TYPE OF OUTCOME DIMENSION
(What basic entity is, or is intended to be, maintained or changed?)

The Audience Dimension

Table 1 lists the major (first level of detail) categories of the "audience" dimension. Table 2 shows subcategories (second-level categories) separately for each of the major categories. For those who need a shorthand for referring to specific categories or for developing filing systems for particular categories of outcomes information, code numbers are also provided in Table 2 for each category and subcategory. (The coding scheme for the Structure is discussed in detail in Appendix A.) For many applications of the Structure, particular subcategories of this dimension will need to be further subdivided into even finer categories—such as, dividing students in a program into those majoring in the program and those just taking courses in the program, or into disabled students and nondisabled students. Such "extending the Structure," as this additional subdividing of categories of any of the dimensions is called, depends on the philosophy and purposes of the user of the Structure and on the context in which the application is taking place (for example, someone using it in curricular development will probably need different additional categories from someone using it in program administrative planning). Specific procedures for extending the Structure are provided in Part III of this document.

The Type-of-Outcome Dimension

Table 3 presents names, definitions, and code numbers for the five overall (first level of detail) categories of the "type-of-outcome" dimension. Table 4 provides additional levels of detail by indicating names and code numbers for the categories and subcategories into which each of the five broadest categories has been divided. Standard definitions along with example outcome measures and indicators are provided in Appendix B for each category and subcategory identified in Table 4. As with the audience dimension, the structure will often need to be extended on the type-of-outcome dimension. For example, in curriculum development it may be desirable to

Table 1

MAJOR CATEGORIES OF THE "AUDIENCE" DIMENSION

10. *Individual/Group Clients*—This category refers to persons or groups of persons who are direct clients of the postsecondary education unit of concern and/or their immediate associates, such as family and relatives or peers.

20. *Interest-Based Communities*—This category refers to large groups of people that are identified as entities working toward a *well-defined interest or mission.*

30. *Geographic-Based Communities*—This category refers to large groups of people defined on the basis of *functional territorial boundaries.*

40. *Aggregates of People*—This category refers to subpopulations of people *distinguished by particular characteristics that may indicate common concerns, needs, or wants,* but who do not necessarily have a common interest or mission, and therefore do not constitute communities.

50. *Other Audiences*—Examples would be the natural environment that is affected by university-sponsored research (which in turn would be expected to have impacts on audiences such as individuals and communities) and populations of animals (such as the animals affected by efforts to keep depleted species from becoming extinct or by the development of veterinary medicines).

Table 2

SUBCATEGORIES OF THE "AUDIENCE" DIMENSION

10. *Individual/Group Clients*—This category refers to persons or groups of persons who are direct clients of the postsecondary education unit of concern and/or their immediate associates, such as family and relatives or peers.

    11. *Students*—Individuals or groups of individuals who currently are enrolled in the program, institution, or system of postsecondary education.

    12. *Former Students*—Individuals or groups of individuals who formerly were enrolled in the program, institution, or system of postsecondary education.

    13. *Family and Relatives of Students or Former Students*

    14. *Peers and Associates of Students or Former Students*

    15. *Faculty*

    16. *Staff Other than Faculty*

    17. *Other Individual/Group Clients*—An example would be an individual who is none of the above but is served by an advisory service offered by the college.

20. *Interest-Based Communities*—This category refers to large groups that are identified as entities working toward a *well-defined interest or mission*.

    21. *Private Enterprise Communities*—Communities where a major purpose is financial remuneration and profit—for example, corporations, small businesses, and farmers.

    22. *Association Communities*—Communities where members belong on the basis of affiliation rather than employment, such as unions and professional societies.

    23. *Government Communities*—Communities designed to administer government regulations and services, such as city hall, state department of education, and legislative communities.

    24. *Nongovernmental/Public Service Communities Other than the Institution Producing the Outcome*—Nonprofit service organizations, such as schools, hospitals, welfare agencies, philanthropic foundations, colleges (other than the college producing the outcome), and research organizations.

    25. *Institution or Institutional Unit Producing the Outcome*—The postsecondary education institution and/or units within that institution that are perceived as the producer/facilitator of the outcome(s) of concern.

    26. *Other Interest-Based Communities*—An example would be an ad hoc coalition task force of representatives from two or more of the above areas.

30. *Geographic-Based Communities*—This category refers to large groups defined on the basis of *functional territorial boundaries*.

    31. *Local Community*—A township, city, county, metropolitan area, or other type of locality having particular boundaries. It is not necessarily restricted to the legal or jurisdictional boundary, but the functional one in which the impact of the institution is (or should be) directly and physically felt. The boundaries will vary with the institution/program and outcome of concern.

    32. *The State*

    33. *A Region*—An aggregation of states or parts of states.

    34. *The Nation*

    35. *An International Community*

    36. *Other Geographic-Based Communities*—An example would be a research discovery that affects primarily people living in the coldest latitudes, or where it snows heavily.

40. *Aggregates of People*—This category refers to subpopulations of people *distinguished by particular characteristics that may indicate common concerns, needs, or wants*, but who do not necessarily have a common interest or mission, and therefore do not constitute communities.

    41. *Ability Level Subpopulations*—Subpopulations defined according to level of ability/proficiency on general intellectual functioning or specific skills—for example, gifted, typical, disadvantaged, or skilled, semi-skilled, unskilled.

    42. *Age Subpopulations*

    43. *Educational Level Subpopulations*

    44. *Income Level Subpopulations*

    45. *Occupation Subpopulations*

    46. *Physical Disability Condition Subpopulations*

    47. *Race Subpopulations*

    48. *Sex Subpopulations*

    49. *Other Such Aggregates*

50. *Other Audiences*—Examples would be the natural environment that is affected by university-sponsored research (which in turn would be expected to have impacts on audiences such as individuals and communities) and populations of animals (such as the animals affected by efforts to keep depleted species from becoming extinct or by the development of veterinary medicines).

divide "intellectual skills" (code number 2250) into the following categories of Bloom's Taxonomy (1956): ability to translate (code 22501), ability to interpret (code 22502), ability to extrapolate (code 22503), ability to apply (code 22504), ability to analyze (code 22505), ability to synthesize (code 22506), and ability to evaluate (code 22507).

One thing should be made clear. No program or institution can hope to *focus* on outcomes within all the categories of Table 4, or perhaps even on many of the categories. Rather, this is a universe of possible outcome categories from which one must *pick and choose* those that are most important, in the light of factors such as philosophy, resources available, and clientele needs. To try to devote primary effort toward accomplishing too many types of outcomes could have disastrous consequences.

Table 3

THE MAJOR CATEGORIES OF THE "TYPE-OF-OUTCOME" DIMENSION

Category Code Number	The Major "Type-of-Outcome" Category Names and Definitions
1000	*Economic Outcomes*—Maintenance or change in economic characteristics and conditions of individuals, groups, organizations, and communities, e.g., in economic access, in economic mobility and independence, in economic security, and in income and standard of living.
2000	*Human Characteristic Outcomes*—Maintenance or change in human makeup and characteristics (other than knowledge and understanding) of individuals, groups, organizations, and communities, e.g., aspirations, competence and skills, affective characteristics, perceptual characteristics, physical and physiological characteristics, personality and personal coping characteristics, recognition and certification, and social roles.
3000	*Knowledge, Technology, and Art Form Outcomes*—Maintenance or change in the knowledge and understanding, technology, or the art forms and works possessed or mastered by individuals, groups, organizations, and communities, e.g., discoveries and inventions, technical developments, syntheses and reformulations of knowledge, new schools of thought in art and works created in those new traditions, renovation of art works.
4000	*Resource and Service Provision Outcomes*—Maintenance or change in the *direct* resources and services (other than those included above) provided to individuals, groups, organizations, and communities, e.g., providing facilities, events, advisory assistance, analytic assistance, teaching, health care, and leadership.
5000	*Other Maintenance and Change Outcomes*—Examples would be: maintenance or change in the format, arrangement, activity, or administrative operation of an organization or institution; maintenance or change in the aesthetic/cultural level of the local community; maintenance or change in family or community activities, practices, and traditions.

Table 4

CODED LISTING OF THE SECOND- AND THIRD-LEVEL SUBCATEGORIES FOR EACH FIRST-LEVEL CATEGORY OF THE TYPE-OF-OUTCOME DIMENSION[a]

Category Code Number	Entity Being Maintained or Changed
1000	*ECONOMIC OUTCOMES*
1100	Economic Access and Independence Outcomes
1110	Economic Access
1120	Economic Flexibility, Adaptability, and Security
1130	Income and Standard of Living
1200	Economic Resources and Costs
1210	Economic Costs and Efficiency
1220	Economic Resources (including employees)
1300	Economic Production
1310	Economic Productivity and Production
1320	Economic Services Provided
1400	Other Economic Outcomes
2000	*HUMAN CHARACTERISTIC OUTCOMES*
2100	Aspirations
2110	Desires, Aims, and Goals
2120	Dislikes, Likes, and Interests
2130	Motivation or Drive Level
2140	Other Aspirational Outcomes
2200	Competence and Skills
2210	Academic Skills
2220	Citizenship and Family Membership Skills
2230	Creativity Skills
2240	Expression and Communication Skills
2250	Intellectual Skills
2260	Interpersonal, Leadership, and Organizational Skills
2270	Occupational and Employability Skills
2280	Physical and Motor Skills
2290	Other Skill Outcomes
2300	Morale, Satisfaction, and Affective Characteristics
2310	Attitudes and Values
2320	Beliefs, Commitments, and Philosophy of Life
2330	Feelings and Emotions
2340	Mores, Customs, and Standards of Conduct
2350	Other Affective Outcomes
2400	Perceptual Characteristics
2410	Perceptual Awareness and Sensitivity
2420	Perception of Self
2430	Perception of Others
2440	Perception of Things
2450	Other Perceptual Outcomes
2500	Personality and Personal Coping Characteristics
2510	Adventurousness and Initiative
2520	Autonomy and Independence
2530	Dependability and Responsibility
2540	Dogmatic/Open-Minded, Authoritarian/Democratic
2550	Flexibility and Adaptability
2560	Habits
2570	Psychological Functioning
2580	Tolerance and Persistence
2590	Other Personality and Personal Coping Outcomes
2600	Physical and Physiological Characteristics
2610	Physical Fitness and Traits
2620	Physiological Health
2630	Other Physical or Physiological Outcomes
2700	Status, Recognition, and Certification
2710	Completion or Achievement Award
2720	Credit Recognition
2730	Image, Reputation, or Status
2740	Licensing and Certification
2750	Obtaining a Job or Admission to a Follow-up Program
2760	Power and/or Authority
2770	Job, School, or Life Success
2780	Other Status, Recognition, and Certification Outcomes
2800	Social Activities and Roles
2810	Adjustment to Retirement
2820	Affiliations
2830	Avocational and Social Activities and Roles
2840	Career and Vocational Activities and Roles
2850	Citizenship Activities and Roles
2860	Family Activities and Roles
2870	Friendships and Relationships
2880	Other Activity and Role Outcomes
2900	Other Human Characteristic Outcomes
3000	*KNOWLEDGE, TECHNOLOGY, AND ART FORM OUTCOMES*
3100	General Knowledge and Understanding
3110	Knowledge and Understanding of General Facts and Terminology
3120	Knowledge and Understanding of General Processes
3130	Knowledge and Understanding of General Theory
3140	Other General Knowledge and Understanding
3200	Specialized Knowledge and Understanding
3210	Knowledge and Understanding of Specialized Facts and Terminology
3220	Knowledge and Understanding of Specialized Processes
3230	Knowledge and Understanding of Specialized Theory
3240	Other Specialized Knowledge and Understanding
3300	Research and Scholarship
3310	Research and Scholarship Knowledge and Understanding
3320	Research and Scholarship Products
3400	Art Forms and Works
3410	Architecture
3420	Dance
3430	Debate and Oratory
3440	Drama
3450	Literature and Writing
3460	Music
3470	Painting, Drawing, and Photography
3480	Sculpture
3490	Other Fine Arts
3500	Other Knowledge, Technology, and Art Form Outcomes
4000	*RESOURCE AND SERVICE PROVISION OUTCOMES*
4100	Provision of Facilities and Events
4110	Provision of Facilities
4120	Provision or Sponsorship of Events
4200	Provision of Direct Services
4210	Teaching
4220	Advisory and Analytic Assistance
4230	Treatment, Care, and Referral Services
4240	Provision of Other Services
4300	Other Resource and Service Provision Outcomes
5000	*OTHER MAINTENANCE AND CHANGE OUTCOMES*
5100	Aesthetic-Cultural Activities, Traditions, and Conditions
5200	Organizational Format, Activity, and Operation
5300	Other Maintenance and Change

[a] The fourth-level categories, into which any of the categories listed here can be divided, are "maintenance" (a fourth digit of "1") and "change" (a fourth digit of "2").

The Time Dimension

No formal categories and subcategories were assigned to the time dimension because no time categories would apply across all audience categories. Furthermore, even at the broadest level, the time categories of interest would be expected to vary depending on the philosophy of the user of the Structure and the particular need in his or her context. Time is so important in planning, however, that it was still made a dimension of the Structure—and the categories to use were left completely up to the user.

To illustrate how specialized the taxonomy for the time dimension may need to be, Ms. Jean Endo of the University of Colorado at Boulder reported to this writer on recommended times during the year for collecting student outcomes and related data using survey questionnaires—as based on their experiences—and when during the students' college and alumni career different data should be collected. These can be transformed into a "Taxonomy of Times to Consider for Collecting Undergraduate Student Outcomes Data Using Survey Questionnaires," as shown in Table 5.

Table 5

TAXONOMY OF TIMES TO CONSIDER FOR COLLECTING UNDERGRADUATE STUDENT OUTCOMES DATA USING SURVEY QUESTIONNAIRES[a]

100 Data from Lower Division Students
- 110 Data from Freshman Students
  - 111 Data Collected Prior to Fall Registration
  - 112 Data Collected One Month Following the First Day of Classes in the Fall
  - 113 Data Collected One Month Prior to First Semester Final Exams
  - 114 Data Collected One Month After Spring Semester Classes Begin
  - 115 Data Collected One Month Prior to Spring Semester Final Exams
  - 116 Other, for Example, in the Middle of the Summer Term
- 120 Data from Sophomore Students
  - 121 Data Collected Prior to Fall Registration
  - 122 Data Collected One Month Following the First Day of Classes in the Fall
  - 123 Data Collected One Month Prior to First Semester Final Exams
  - 124 Data Collected One Month After Spring Semester Classes Begin
  - 125 Data Collected One Month Prior to Spring Semester Final Exams
  - 126 Other, for Example, in the Middle of the Summer Term

200 Data from Upper Division Students
- 210 Data from Junior Students
  - 211 Data Collected Prior to Fall Registration
  - 212 Data Collected One Month Following the First Day of Classes in the Fall
  - 213 Data Collected One Month Prior to First Semester Final Exams
  - 214 Data Collected One Month After Spring Semester Classes Begin
  - 215 Data Collected One Month Prior to Spring Semester Final Exams
  - 216 Other, for Example, in the Middle of the Summer Term
- 220 Data from Senior Students
  - 221 Data Collected Prior to Fall Registration
  - 222 Data Collected One Month Following the First Day of Classes in the Fall
  - 223 Data Collected One Month Prior to First Semester Final Exams
  - 224 Data Collected One Month After Spring Semester Classes Begin
  - 225 Data Collected One Month Prior to Spring Semester Final Exams
  - 226 Other, for Example, in the Middle of the Summer Term

300 Data from Alumni
- 310 Data Collected at Graduation
- 320 Data Collected One Year after Graduation
- 330 Data Collected Five Years after Graduation
- 340 Other, for Example, Data Collected 20 Years after Graduation

400 Other, for Example, Data Collected after Students Have "Dropped Out"

[a]These categories and subcategories are based specifically on the data collection experiences of staff in the Office of the Vice-Chancellor for Academic Affairs at the University of Colorado, Boulder. Therefore, they may not be entirely appropriate for other postsecondary institutions.

PART II
THE POTENTIAL USES OF THE OUTCOMES STRUCTURE

A number of potential uses have been perceived for the Outcomes Structure by various people who reviewed it, some of which have been tested in a preliminary way and found promising. This section will discuss these proposed uses and provide examples.

Only time and widespread use in a variety of different institutional and other settings will tell whether the so-far promising potential of the Structure will "bear fruit." Such use will also probably suggest modifications for future versions of the Structure, and adaptations in application procedures that need to be made for different types of users and for different types of institutions. The procedures in this document are only a start, and feedback from users of the Structure is solicited.

1. **Communication**
   It is felt that if the terms and their definitions in the Structure are agreed to by a large number of planners and managers in postsecondary education—and those that are not agreed to are modified accordingly in future editions of the Structure—it can serve as a useful common language where the outcome concepts and relationships remain constant from one use of outcomes information to another. In other words, the aim was to develop a "workable language" for more effective communication about postsecondary education outcomes. Having kept the terms, definitions, and the order of placement as neutral and value-free as possible should facilitate such a purpose.

   If the Structure terms, definitions, and relationships do gain widespread acceptance, they should help institutional administrators and faculty to communicate more clearly and succinctly about the goals and outcomes of the institution and its programs to many important publics—such as legislators, community leaders and citizens, employers, foundations and other funders, alumni, and prospective students and their parents. In this "age of accountability," such communication is essential in order to maintain public support and to attract the needed students. For example, in a recent prospective student information needs assessment study coordinated by this author, involving questionnaire responses by several thousand relevant people and interviews with over 500, clear and concise information about student outcomes ranked very high as information that prospective students need.

   The Structure can be just as useful for communication about outcomes within the institution. For example, pairs of members of a Student Learning Outcomes Task Force from the Council for the Advancement of Small Colleges (CASC) visited four small private colleges to interview administrators, faculty members, and students about the specific learning activities emphasized in their programs. After discussing activities in each interview, categories of the NCHEMS Outcomes Structure were introduced in an attempt to have the interviewees link their activities to outcome areas. The Structure was found useful for this purpose, but the interviewers also noted in talking to faculty from different disciplines that the Structure served as a "taxonomic device for communicating outcomes across disciplinary lines."

2. **Stimulation**
   In the preliminary tryout of the Structure, there was much evidence that the Structure can stimulate administrators and faculty to start thinking more about what they are trying to accomplish for different groups of students at their institution or in their programs, and to consider outcomes in a more systematic and concrete manner than they have before. For example, in the CASC project mentioned above, the interviewers had a difficult time

switching the conversation from the "comfortable" topic of activities to the "uncomfortable" topic of outcomes, but the Structure categories helped them to do so. As the synthesizer of the notes from the various interviewers, Dr. Edward Lundin stated, "Without the Outcomes Structure categories, the faculty members could have focused on activities without any systematic examination of the larger purposes."

The CASC Task Force conducted another project involving visits to four other small colleges, this time jointly with NCHEMS, that involved a two-person CASC/NCHEMS team going on campus to orient administrators, faculty, and students to outcomes concepts and the Structure through a half-day workshop, and then conducting interviews with individuals in each of those groups for one and one-half days. In the interviews, respondents were first asked to look at the audience dimension categories and then to point out those they felt were important to consider in planning outcomes for the institution or for the particular program of special concern to them. Then they were asked which, if any, student subgroups in their program or area of concern had important enough outcome needs unique to them that they should be considered separately in planning for the program or area.

Next the respondents rated the detailed categories of the type-of-outcome dimension according to which were considered to be essential, which were important, and which were less than important as student learning outcomes for the important (for planning) groups of students in the institution or the program of special concern to them. For one or two of the categories selected as "essential," they were asked to list several specific, observable outcomes that were or should be emphasized for those students, and measures or indicators that they felt would constitute concrete evidence as to whether or not those specific outcomes occurred. Then they were asked to identify the specific student experiences and activities that they felt would most contribute to the realization of those priority learning outcomes that had been identified. Finally, they were asked their impression of the utility of the Structure now that they had gone through this experience.

All of the students, most of the faculty members outside of education, and many of the administrators reported that they had never before really thought like this about what their institution or program was trying to accomplish for its students, and the majority of these people reacted positively to the question about utility of the Structure. As one faculty member stated (paraphrasing him), "I'm sure that I have always had in the back of my mind what I specifically wanted to accomplish for my students but have never been able to state it in formal, concrete, and systematic terms like this until now." Another stated, "It has made me stop and think about what we are trying to accomplish, and it is making the objectives in the back of my mind conscious." And as a director of development stated (paraphrasing again), "I now see many concrete things I never before thought to mention to foundations, employers, and others in the community that our institution is trying to accomplish for its students." Other people felt that the Structure could stimulate people to focus on the "why of outcomes," to "raise questions," to "think in a concrete manner," and to "provide stimulation to guide direction." Clearly the Structure would seem to have great potential as a device for stimulating a variety of people to think more about the outcomes they want accomplished, and in a more systematic and concrete manner than they have previously. This, in turn, could lead to useful and stimulating group discussion about the outcomes desired for a program or institution, and about alternative strategies for bringing them about.

3. **Planning, Management, and Evaluation**
There are three "basic processes" that involve the direct application of the Outcomes Structure. These processes in turn can serve important functions in postsecondary education planning, management, and evaluation. Step-by-step instructions for these processes are provided in Part II of this document. In the discussion to follow, the processes will be referred to as Process 1, Process 2, and Process 3. Their respective descriptions are:

PROCESS 1 – *Generating lists of priority outcomes* through application of the Outcomes Structure.

PROCESS 2 – *Classifying outcomes* through application of the Outcomes Structure.

PROCESS 3 – *Storing and retrieving outcomes information* through application of the Outcomes Structure.

Some functions in which these processes may be useful are:

A. **Needs Assessment.** In this "time of accountability," the importance of knowing the outcome wants and needs of prospective clientele groups is increasingly being recognized by postsecondary education planners and managers. Needs assessment, as this process is commonly called, involves (among other activities) surveying these client groups and various concerned others to try to ascertain needs, wants, and expectancies. The Structure could suggest areas of needs assessment focus to consider. Furthermore, many of the items on such surveys are stated in outcome terms, and the Structure provides a comprehensive universe of outcome categories that can be used to stimulate thinking about specific outcomes items and to ensure that all areas of potential importance are considered for coverage in the questionnaire. A similar universe of categories was found to be useful in developing the prospective student information needs assessment questionnaire referred to previously. Carefully thought-out lists of outcomes and classes of outcomes for different audiences resulting from either Process 1 or Process 2 can be used to determine outcome items for the survey forms.

B. **Goal Identification.** Another important planning function is determining and developing priorities for goals and objectives of the institution or institutional unit of concern. Needs assessment results are useful input to such a goal identification process, and an application of Processes 1 and 2 to needs assessment has already been mentioned. Some goals (called *outcome goals*) focus on the outcomes that are desired and intended for the institution, program, or other unit of concern. Others, which are often related to outcome goals and which some people consider also to be outcomes because they are a desired result of institutional processes, focus on such things as levels of resources and particular environmental, climate, and process conditions or levels (*process goals*). Goal identification involves taking the broad mission statements of the institution or the missions of institutional units and transforming them into the more specific goals that are appropriate as based on needs assessment results.[1]

The "type-of-outcome" dimension of the Outcomes Structure is comprehensive in its coverage of types of outcomes, is hierarchical in nature, and has several levels of detail. It has broad outcomes at the first level of detail, and increasingly specific outcomes at each succeeding level of detail. Therefore, since the definition of an "outcome goal" is "desired outcome," the Structure is appropriate for use in the goal-identification task. (Other aids in this process are also available, for example, the Educational Testing Service Institutional Goals Inventory.) And, in effect, that is exactly what Process 1 is all about. For each important audience of the institution or institutional unit of concern, the process leads to a list of desired, specific priority outcomes. The interviewees in the joint CASC/NCHEMS project cited earlier were in effect identifying their outcome goals for their institution or program through an abbreviated version of Process 1, but they did not explicitly involve an integration of formal mission with needs-assessment data.

C. **Goal Assessment.** After a list of goals for an institution or program has been formulated, it is desirable to test its adequacy

[1] For a more thorough discussion of the goal identification process that includes a discussion of integrating mission with needs assessment data and of consensus seeking processes concerning goals, see O.T. Lenning and S.S. Micek, "Defining and Communicating Institutional Mission/Role/Scope and Priorities: The Needs of Different Types of Postsecondary Institutions," paper presented at the annual meeting of the American Educational Research Association, San Francisco, April 1976 (ERIC document ED 121376).

of coverage. For outcome goals, one way of doing this is to use Process 2 to classify all of the goals in the list, and then to apply (or reapply) Process 1 to those areas of the Structure that seem to be important but to which none (or few) of the goals are assigned—to determine the "holes" or "gaps."

Staff at the University of Colorado at Boulder over a period of years, through surveys and interviews of important clientele groups, had developed several lists of intended outcomes that they felt confident were comprehensive for their needs. Therefore, NCHEMS hired one of the coordinators of that project to evaluate the coverage of those lists using the Outcomes Structure in the manner described above. To the staff's surprise they found that several outcome areas that they considered to be quite important had been overlooked in the development of their lists. Thus, they are revising their lists accordingly, and also their freshman student questionnaire, which was based in part on their lists.

Spring Arbor College, one of the participants in the joint CASC/NCHEMS project, used a different method of applying the structure to achieve similar results. They took lists of outcome goals for the institution and separately for each of a number of programs—some of the goals had been developed through use of the Institutional Goals Inventory and others had been developed in an open-ended manner—and classified them into the five broad (first-level of detail) categories of the Outcomes Structure Type-of-Outcome dimension. Then a goal-profile graph that indicated the number of goals assigned to each category was drawn separately for the institution and each program. For several programs, they discovered type-of-outcome categories having few goals assigned to them, which on reflection they felt should have had many goals, while one or more other categories ended up with larger percentages of the goals than they had anticipated.

D. **Goal Translation.** In order to determine the measures or indicators on which data should be collected for evaluation of the institution and/or program, goals must be translated into observable, measurable objectives. If Process 1 is carried to its most detailed level (specific, concrete, observable outcomes), and appropriate indicators or measures and desired performance levels on them are determined, one has reached the objective level—which is one thing the CASC/NCHEMS project was attempting (successfully, considering the time available in each interview) to do. Use of the sample indicators and measures listed in the right-hand column of Appendix B may be helpful to stimulate thinking about what measures, and what objective levels on those measures, would be most appropriate for the goals that were selected. A future project at NCHEMS will develop relatively comprehensive lists of measures and indicators for selected categories of the Structure, from which planners and managers can choose those most appropriate for them.

E. **Allocation and Utilization Planning and Management.** One important administrative planning function is resource allocation—decisions about how the available money, staff, and other resources should be applied. Goal identification and translation results are important considerations in making allocation decisions. So is the time when the outcomes are expected to occur and how long they are expected to last, information that can be determined in Process 1 and Process 2.

Process 1 or Process 2 may also aid in other planning decisions, such as program activity planning and curriculum development. (When interviewees in the CASC/NCHEMS project were asked to specify the most important student experiences and activities to use for the different priority outcomes they had specified, they were in a planning phase.) And that planning in turn provides general guidance for day-to-day operations. Another planning function mentioned under goal translation is what measures or indicators to use for collection of evaluative data, and performance

levels. If certain outcomes are not expected but seem to have some probability of occurring, data should also be collected for them. A related planning decision is when to collect various evaluative data (a management function), and the "time" information gathered in Process 1 or 2 should aid this decision.

In the joint CASC/NCHEMS project interviews, use of the Structure for planning at levels within the institution that had not been considered when designing the Structure were emphasized by some. For example, a number of faculty members felt confident that use of the Structure could be quite helpful in developing courses within the curriculum. Furthermore, several students and one student personnel administrator expressed the opinion that the Structure could be useful to students in planning what they want from their college careers.

F. **Evaluation.** Determining whether the intended and planned outcomes actually occurred is an evaluation function, as is the determination of whether unintended outcomes have occurred. Because it relates back to the outcome goals (intended outcomes) and the intended quality of institutional and program processes for achieving those goals, success in the evaluation phase depends greatly on the goal-setting and planning phases. The data for the measures or indicators selected during the planning process, with the help of Process 1 or Process 2 and Appendix B, have presumably been collected at appropriate times (times also decided during the planning process through input stimulated by the Structure "time" dimension). If so, the actual outcomes and outcome levels can be compared to the desired outcomes and outcome levels, and any unintended outcomes that are observed may be assessed. Then the evaluation results and interpretations can be fed back to guide new goal setting and planning. If data are being collected for a large number of measures pertaining to thousands of students at several or many different times during their college careers, computerized storage of the outcomes information, using Process 3, becomes essential. Interpretations of the discrepancies found between each important *desired* outcome and its associated *actual* outcome can be fed back to the planning process to aid in decisions about modification, revision, replacement, or termination of activities, resources, direction of effort, and so forth.

The evaluation phase involves much more than just comparing actual outcomes to intended outcomes. It includes data and analyses (plans for which should also have been a part of the planning phase) to answer questions such as the following: Does the outcome result from this postsecondary education institution or institutional unit? How do we know? Have resources, including those embodied in the entering students, been accounted for? What is the value of the outcomes as compared to their cost?

Evaluation is closely related to the function mentioned earlier of communicating with funders and other concerned publics. (The image of the institution and its programs is crucial in attracting funds, students who will be happy there, and a good staff.) It is hoped that more precise evaluative data about the institution and its programs will be available from application of the Structure. With this knowledge, and more precise terminology, administrators and faculty may be able to communicate more succinctly what their institution is accomplishing for individuals and society, and how their institution and its programs differ from their counterparts.

4. **Research**

All three of the "basic processes" outlined in the preceding subsection may be useful in both basic and applied outcomes research. Process 1 results can suggest gaps in the comprehensive set of outcomes that need to be researched, either for specific types of outcomes or large areas of outcomes. It can also, when considered with the sample measures and indicators presented in Appendix B, suggest outcomes and classes of outcomes where the development of new measures

should be especially focused. Results of studies found in the literature, pools of outcomes questionnaire items used in various studies, pools of outcome measures that have been collected, literature references of outcome studies, data collected in large-scale studies, and so forth, can be classified using Process 2. They they can be stored in a computer storage bank within locations keyed to the most detailed classes, and be made available for retrieval in aggregated or disaggregated form at the proper time for any analyses desired (Process 3). In addition to the three basic processes, the relationships among the various classes and subclasses of the Structure itself can provide research hypotheses that should be tested out. One reviewer of the Structure reported that his examination suggested to him an extensive outcomes research agenda that needs to be commenced. In addition to the research questions implied above, other possible questions stimulated by the Structure include the following: What are the real (as opposed to folklore) outcomes of postsecondary education? What outcomes naturally go together—form clusters or constellations? Which outcomes last longest? Which clusters of outcomes are most valuable? What indicators and measures are most appropriate for the different categories of the Structure, and how can we go beyond opinions to observing facts and "hard data?" Which processes yield which outcomes for whom? What are the relationships of costs to value added for different types of outcomes? What factors impact on outcomes of different types, and how can we understand such relationships? How do the outcomes of institutions, programs, and other postsecondary education settings vary for different audiences? Which *outputs* (direct outcomes) lead to which *impacts* (indirect outcomes)?

PART III
GUIDELINES FOR USING THE OUTCOMES STRUCTURE TO ACCOMPLISH THREE BASIC PROCESSES

The Outcomes Structure is a framework for use in organizing and classifying information about educational outcomes. It allows placement of outcomes along three basic dimensions: audience, type-of-outcome, and time. Unless one has decided who or what is to receive or be affected by the outcome of interest—the audience—directions for a course of action are missing. The same is true concerning whether we are striving to maintain or to change characteristics and conditions, and specifically what it is we are trying to maintain or change—the type-of-outcome. Similarly, planning related to educational outcomes can be adversely affected if we give no thought to when the outcomes should occur. And evaluation may not be useful if evaluative data are not collected at the proper time.

This section describes three basic processes for use of the Structure: (1) generating useful lists of desired or expected priority outcomes for an institution or institutional unit, (2) classifying the outcomes or outcomes information in available lists, for an institution or institutional unit, and discovering where there are important "holes" or "gaps," and (3) storing and retrieving outcomes information. As discussed in Part II, these processes can be applied in various ways to aid important decision processes in the areas of needs assessment, goal identification, goal assessment, goal translation, planning and management, and evaluation. Furthermore, they can be applied at the institution-wide level, at the program or departmental level, and at other levels such as planning courses, student planning, state system planning.

Process 1: Generating Lists of Priority Outcomes

Developing a listing of the desired outcomes is especially important for planning, whether it be planning for a course, planning for a curricular program, planning for an academic department, planning for an institution, or planning for a system of institutions. (As mentioned earlier, it also is extremely important for tasks such as evaluation, but these tasks derive and extend from the planning function.) In addition, the listing should give some indication of priority: for example, which of the outcomes are essential, which are valuable, and which have little or no value. Process 1 consists of applying the Outcomes Structure to develop such a listing. Decisions (choices) will be made at each of the steps that follow. "Who decides" will not be discussed here— it depends on local factors such as organizational arrangement, administrative styles, and customary procedures. It is strongly recommended, however, that some person have clear authority and assigned responsibility for making these decisions and that well-thought-out decision procedures be developed. In addition, it is important that representatives of each major concerned group on campus, including students, be involved through providing input for these decisions. There are a number of ways this can be done—for example, "town hall" meetings, committees, interviews, surveys, card sorts, or the Delphi technique may be used. It also would be desirable to get input from concerned off-campus groups such as community leaders, alumni, and members of the community at large. Although the user may wish to modify the procedures from those that are suggested, the following are general procedures that evolved from preliminary tests of the Structure. But let it be made clear, *local options are encouraged, whether they be modifications in the procedures for using the Structure or in the content of the Structure itself.* For example, in the joint CASC/NCHEMS visits to colleges, time was short so some of the steps were omitted and all others abbreviated.

Outcomes for Whom? Before beginning to think about the types of outcomes or about specific

outcomes, it is important to consider the audience that is meant to receive benefits from or in other ways be affected by the academic institution or the unit of concern within that institution. There are many potential audiences (for example, students and those who influence students, such as parents and counselors; governors, legislators, mayors, and voters; and society, as represented by employers and buyers [that is, consumers] in the market place). The purpose is to choose those which should be of concern in planning for outcomes. Too often in institutional planning, the target audiences for major intended outcomes are not formally specified, which reduces the potential for tailoring the planned institutional activities to fit the characteristics and situation of the audience. The "audience" dimension of the Structure was developed to facilitate determining the people, the communities, or the other entities specifically intended by the institutional or program planners to receive or be affected by outcomes of the institution/institutional unit. The primary categories of the audience dimension are shown in Table 1 on page 4. (As mentioned previously, code numbers have been assigned to the categories, and the coding scheme is discussed in Appendix A.) Note that there are five major (first-level) audience categories, one being an "other" category. Not only do "other" categories make the Structure more flexible and able to meet the needs of unique institutions, but also they stimulate the user of the Structure to ask whether there are additional audiences for the institution's outcomes that should be considered.

STEP 1 Decide which of the broad audience categories in Table 1 are important recipients of the outcomes of the institution or institutional unit of concern.

STEP 2 Look at Table 2 on page 5. For each major audience category selected in Step 1, decide which of the subcategories (second-level) in Table 2 are important recipients of the outcomes of the institution or institutional unit of concern.

STEP 3 It may be helpful when thinking about the outcomes to be even more specific than the categories listed in Table 2, concerning who or what are the audiences of concern. Therefore, for each audience subcategory selected for focus, it is suggested that specific significant groups within the category be listed. Examples for the "students" category in Table 2 might be "students who entered out of high school" and "older students." (Instead of older students it might be desirable to have even more specific groups, such as "veterans," "homemakers," "retrainees," and "retired persons.") A set of examples for students that might be especially pertinent for a curricular program are "students majoring in the program" and "nonmajors taking courses in the program." Examples of more detailed categories for private enterprise communities might be "major corporations in the community" (it could be helpful to list them if there are only a few or to list the different types), "small business firms in the community" (again a listing of different types could be useful later), and "area farmers." Note in the last set of examples that we in effect combined two quite different second-order categories: "local community" and "private enterprise communities."

The lists of more specific audience types generated for the various "audience" subcategories of concern in Table 2 can be used in several ways, whichever seems more helpful to the person using the Structure: (a) they can be used as cues to stimulate thinking about specific outcomes for the Table 2 categories selected, (b) they can be made into third-level categories of the audience dimension to insure more specificity in categorizing outcomes, and (c) some of them can be handled as in (a) above, and others as in (b) above.

STEP 4 The audience categories on which you wish to focus specific attention in developing lists of desired educational outcomes have been determined in Steps 1-3. Now print each of these category names at the top of separate sheets of blank paper (one audience

category per sheet). In addition, for each category, print near the top of the sheet any audience examples that would presumably be helpful in stimulating thinking about specific desired outcomes for that audience category (as suggested in *a* of Step 3).

What Outcomes? Now that you have a group of sheets with an important audience category printed at the top of each, you are ready to proceed to the "type-of-outcome" dimension of the Structure. The purpose now is to determine which outcomes are important for each audience that has been chosen as sufficiently important to merit separate consideration in planning for the institution or program of concern. The type-of-outcome dimension identifies whether or not the outcome involves a change in status (maintenance versus change), and the basic entity that is maintained or changed (such as knowledge and understanding, skills and competencies, attitudes and values, certification status, income, standard of living, social interactions, and art forms or expression).

STEP 5 Order the sheets according to which audiences should be focused on first in listing specific outcomes, and which last. That way, if you run out of time, you will have completed lists of outcomes for what you consider to be the most important or relevant audiences for the institution/institutional unit of concern. Criteria that may be helpful in this ordering process include such factors as whether the primary impact is likely to be direct or indirect (the institution often has more control and opportunity to affect direct outcomes as compared to indirect outcomes), relative numbers of outcomes expected for each group, how basic and fundamental the outcomes for each group seem to be, and the perceived importance of each group relative to the others.

Some people will prefer to focus on the outcomes for only one audience at a time. Others will find it useful and efficient to focus on the outcomes for more than one audience at a time. It is extremely difficult to focus on outcomes separately for more than two or three audiences at a time, however, based on experiences in the CASC/NCHEMS joint project.

STEP 6 The five *major* (first-level) categories of the type-of-outcome dimension, and definitions for each, are shown in Table 3 on page 6. Across each of the "audience sheets" selected in Step 5 list the type-of-outcome categories from Table 3 that you consider important for that audience group. To illustrate, this step is shown in Figure 1 on page 18 for a political science department curriculum committee at Alpha College (a fictitious college). They had decided to limit their focus to two audience groups, "students majoring in political science" and "other students taking political science courses," and thus they had two audience sheets on which they were working.

STEP 7 Table 4 on page 7 lists the second- and third-level categories for each first-level category of the type-of-outcome dimension, and definitions for all of these subcategories are given in Appendix B. Now go to the first audience sheet and do the following:

a. For each first level "type" category listed on the audience sheet, jot down on a scratch pad all second-level categories that your analyses (whether they be subjective or objective analyses) indicate to be important for that audience (referring to the definitions of Appendix B as needed).[2]

b. For each second-level category decided on in *a*, list on the audience sheet all third-level categories that you consider to be important (referring to the definitions of Appendix B as needed).

Repeat *a* and *b* for every sheet. Figure 2 on page 19 shows the Alpha College Political Science Committee sheets after Step 7 was completed.

[2] If you are unsure about whether a category should be included, list it. Don't waste time evaluating further at this level because when you get down to the subcategories for that category it will probably become clear whether or not it should be included. In the CASC/NCHEMS test of the Structure, this was a major reason for the process being slowed.

Figure 1

THE AUDIENCE SHEETS OF THE POLITICAL SCIENCE DEPARTMENT CURRICULUM COMMITTEE AT ALPHA COLLEGE AFTER THEY HAD COMPLETED *STEP 6*

Students Majoring in Political Science — *Sheet 1*

2000—*Human Characteristic Outcomes*	3000—*Knowledge, Technology, and Art Form Outcomes*

Other Students in Political Science Courses — *Sheet 2*

2000—*Human Characteristic Outcomes*	3000—*Knowledge, Technology, and Art Form Outcomes*

Figure 2

THE AUDIENCE SHEETS OF THE POLITICAL SCIENCE CURRICULUM COMMITTEE AT ALPHA COLLEGE AFTER THEY HAD COMPLETED *STEP 7*

Students Majoring in Political Science — *Sheet 1*

2000—*Human Characteristic Outcomes*	3000—*Knowledge, Technology, and Art Form Outcomes*
2120 - Interests	Knowledge and Understanding of:
2130 - Desires, Aims, Goals	3110 - General Facts and Terminology
2220 - Citizenship and Family Membership Skills	3120 - General Processes
2230 - Creativity Skills	3130 - General Theory
2240 - Expression and Communication Skills	3210 - Specialized Facts and Terminology
2250 - Intellectual Skills	3220 - Specialized Processes
2260 - Interpersonal, Leadership, and Organizational Skills	3230 - Specialized Theory
2270 - Occupational Skills	
2310 - Attitudes and Values	
2340 - Mores, Customs, and Standards of Conduct	
2410 - Perceptual Awareness and Sensitivity	
2840 - Career and Vocational Roles	
2850 - Citizenship Roles	

Other Students in Political Science Courses — *Sheet 2*

2000—*Human Characteristic Outcomes*	3000—*Knowledge, Technology, and Art Form Outcomes*
2120 - Interests	Knowledge and Understanding of:
2130 - Desires, Aims, Goals	3110 - General Facts and Terminology
2220 - Citizenship and Family Membership Skills	3120 - General Processes
2230 - Creativity Skills	3130 - General Theory
2240 - Expression and Communication Skills	
2250 - Intellectual Skills	
2260 - Interpersonal, Leadership, and Organizational Skills	
2310 - Attitudes and Values	
2340 - Mores, Customs, and Standards of Conduct	
2410 - Perceptual Awareness and Sensitivity	
2840 - Career and Vocational Roles	
2850 - Citizenship Roles	

STEP 8 Traditionally, maintenance and change have been considered by many to be fundamental purposes of postsecondary education (for example, *preserving* the culture and *improving* the condition of mankind). Too often planners focus only on bringing about change, and do not consider maintenance outcomes in their planning. For example, in curriculum development for advanced courses, it may be important to build in exercises at periodic intervals that will keep the students from getting "rusty" on important basic skills that would not otherwise be applied in the advanced program. For these reasons, and because these two types of outcome goals require quite different orientations and approaches in planning and management, they were made fourth-level categories of the type-of-outcome dimension. Definitions for each category follow:

1. *Maintenance*—Outcomes that result in keeping the status quo; in stabilization, reproduction, or preservation. Examples include preserving cultural values, restoring artifacts and paintings, keeping up the educational level of the family, and skill maintenance provided by in-service education.
2. *Change*—Outcomes that result in alteration of the status quo, in reorganization, modification, revision (improvement or otherwise), or replacement. Included are economic and social mobility, degree or certification awarded the student, increased knowledge and skill level, new art forms, technological innovations, medical discoveries, and so forth.

For all of the type-of-outcome categories listed on each audience sheet, indicate in some way (for example, by the letters M, C, and B, or by a fourth-digit code of 1, 2, or 0) whether the category should emphasize only *maintenance*, only *change*, or *both* maintenance, and change. In the case of the Alpha College Political Science Committee, they decided to focus on change in each case. Therefore, they changed the fourth digit of each outcome code number from '0' (both) to '2' (change).

STEP 9 For some purposes, such as curriculum development and planning for a course, still more detail may be needed than the third-level categories of Table 4. Logic or specialized taxonomies that are available may suggest the need for a set of fifth-level categories for some of the type-of-outcome categories listed on the sheet. For example, using Bloom's Taxonomy of Educational Objectives (1956), intellectual skills (code number 2250) can be divided into: "ability to comprehend," "ability to apply," "ability to analyze," "ability to synthesize," and "ability to evaluate." Similarly, physical and motor skill outcomes (code number 2280) could be divided into more detailed categories using one of the six psychomotor taxonomies listed in Lenning (1977a). As a final example, "attitudes and values" (code number 2310) could be divided into the following categories listed in the NCHEMS Inventory of Higher Education Outcome Variables and Measures (Micek and Wallhaus, 1973): intellectual disposition, political attitudes and values, racial/ethnic attitudes and values, personal ethics, social conscience, religious and spiritual attitudes and values, and career attitudes and values.

If you determine that more detailed categories are needed for any of the third-level categories listed on your audience sheets, decide what those categories should be—either through application of an available taxonomy or through open-ended logic. Then replace those listed categories with the even finer categories you have selected. Figure 3 shows the Alpha College Political Science Committee sheets after Step 9 was completed. Note that they replaced "intellectual skills" with fifth-level categories taken from Bloom's

Figure 3

THE AUDIENCE SHEETS OF THE POLITICAL SCIENCE CURRICULUM COMMITTEE AT ALPHA COLLEGE AFTER THEY HAD COMPLETED *STEP 9*

Students Majoring in Political Science — *Sheet 1*

2002—*Human Characteristic Outcomes*

2122 - Interests
2132 - Desires, Aims, Goals
2222 - Citizenship and Family Membership Skills
2232 - Creativity Skills
2242 - Expression and Communication Skills
2252 - ~~Intellectual Skills~~
2262 - Interpersonal, Leadership, and Organizational Skills
2272 - Occupational Skills
2312 - Attitudes and Values
2342 - Mores, Customs, and Standards of of Conduct
2412 - Perceptual Awareness and Sensitivity
2842 - Career and Vocational Skills
2852 - Citizenship Skills

Ability To:

22521 - Translate Political Science Literature
22522 - Interpret Political Science Literature
22523 - Extrapolate Political Science Literature
22524 - Apply Political Science Literature
22525 - Analyze Political Science Literature
22526 - Synthesize Political Science Literature
22527 - Evaluate Political Science Literature

3002—*Knowledge, Technology, and Art Form Outcomes*

Knowledge and Understanding of:
3112 - General Facts and Terminology
3122 - General Processes
3132 - General Theory
3212 - Specialized Facts and Terminology
3222 - Specialized Processes
3232 - Specialized Theory

Other Students in Political Science Courses — *Sheet 2*

2002—*Human Characteristic Outcomes*

2122 - Interests
2132 - Desires, Aims, Goals
2222 - Citizenship and Family Membership Skills
2232 - Creativity Skills
2242 - Expression and Communication Skills
2252 - ~~Intellectual Skills~~
2262 - Interpersonal, Leadership, and Organizational Skills
2312 - Attitudes and Values
2342 - Mores, Customs, and Standards of Conduct
2412 - Perceptual Awareness and Sensitivity
2842 - Career and Vocational Roles
2852 - Citizenship Roles

Ability To:

22521 - Translate Political Science Literature
22522 - Interpret Political Science Literature
22523 - Extrapolate Political Science Literature
22524 - Apply Political Science Literature
22525 - Analyze Political Science Literature
22526 - Synthesize Political Science Literature
22527 - Evaluate Political Science Literature

3002—*Knowledge, Technology, and Art Form Outcomes*

Knowledge and Understanding of:
3112 - General Facts and Terminology
3122 - General Processes
3132 - General Theory

Taxonomy, and added a fifth digit to the code number for each of those fifth-level categories.

STEP 10 For each detailed "type-of-outcome" category on each of the audience sheets, on separate sheets of paper you are now ready to list important specific outcomes you might expect (not just those you desire) of that type for that audience. Some users of the Structure may want to develop long lists of extremely detailed outcomes for each category, while others may want to develop shorter lists of outcomes that are less specific. Several suggestions might help stimulate your thinking as you attempt to identify specific outcomes for each category:

a. Think in terms of outcomes you would consider to be: (1) "positive in value," (2) "neutral in value," and (3) "negative in value." For example, many might consider "increased ability to analyze problems" to have positive value and "increased drug use" to have negative value.

b. Think in terms of outcomes that are: (1) *easy* to measure, and (2) *difficult* to measure.

c. Think in terms of outcomes that are: (1) *products*—tangible, concrete entities that endure with time, such as knowledge, skills, a program completer, a degree, a job, a book published; (2) *events*—observable, tangible transactions or sets of behaviors that do not endure with time, such as a seminar, a concert, a graduation exercise, being listed in *Who's Who in America;* and (3) *conditions*—intangible but real circumstances, such as morale, satisfaction, an attitude or belief, an appreciation, social equality, achievement, or elimination of polio.

d. Think in terms of outcomes that are: (1) *outputs*—the direct end products, events, or conditions that are expected to result from the application of the institution or institutional unit processes to transform the various inputs, such as achievement levels, specialization of knowledge, degrees, program completers, publications, cultural or entertainment events; and (2) *impacts* — the consequences of outputs and earlier impacts (that is the indirect products, events, or conditions produced), the differences they make, such as a program completer's ability to obtain and hold a job, the security and income or the prestige the job gives a person, the increased gross national product that results from increased income of individuals, the increased standard of living and quality of life that may be associated with increased gross national product, and so on.

The outcomes listed may be quite broad—like those examples listed above—or they may be very specific, such as the percentage scoring above a particular level on a certain test or inventory. (Examples of specific measures that could be used for each detailed category of the type-of-outcome dimension are given in the right-hand column of the pages in Appendix B.) How specific they should be depends on the philosophy, needs, and desires of the person using the Structure.

STEP 11 Now that you have a list of specific desired outcomes for each important audience, it will be useful to separate all the outcomes listed into priority groups (and to record the priority status of each) such as the following: (1) *very important* outcomes and (2) *important* outcomes. You may desire to use other categories than these. As with the other steps, it will be beneficial to get input from major concerned groups of people, both on and off the campus.

To illustrate what the lists coming out of Step 11 might look like, Figure 4 shows the first page of intended outcomes for political science majors developed by the Alpha College Political Science

Figure 4

THE FIRST PAGE OF THE OUTCOME LIST FOR STUDENTS MAJORING IN POLITICAL SCIENCE THAT HAD BEEN DEVELOPED BY THE POLITICAL SCIENCE CURRICULUM COMMITTEE AT ALPHA COLLEGE AT THE COMPLETION OF STEP 11

INTERESTS:

*1. Increased student interest in the theory, principles, and practices of government and politics.

*2. Increased student interest in learning about different political concepts, philosophies, and ideologies.

3. Increased student interest in entering politics, government, or public administration.

4. Increased student interest in international relations and world views.

5. Increased student interest in the analysis and solution of social problems.

*6. Increased student interest in constitutional law and jurisprudence.

*7. Increased student interest in the dynamics of change in American society.

*8. Increased student interest in the public economy and its operation.

DESIRES, AIMS, OR GOALS:

1. Increased student desire and intention to prepare for advanced and specialized study in political science.

2. Development by students of plans for political science careers in teaching, government, business, and law.

3. Development in students of a desire for public service.

*4. Development in students of a desire for conducting political analysis and action while they are still students on campus.

*5. Development in students of an aim to be a model in the conduct of citizenship responsibilities.

6. Development in students of an aim to uphold democracy as our political system.

*7. Development in students of a desire to improve the character of the relationships between citizens and government, and of the values and criteria by which quality of political life is judged.

*8. Development in students of intentions to uphold citizen rights and liberties, and the separation of church and state.

CITIZENSHIP AND FAMILY MEMBERSHIP SKILLS:

*1. Increased student ability to intelligently conduct citizenship responsibilities.

*2. Increased student ability to understand the basic political processes and institutions as they operate in different national and cultural contexts.

*3. Increased student ability to critically analyze public opinion and propaganda.

*4. Increased student ability to analyze voting patterns, political participation, techniques of political action, legislative or governmental actions, and governmental bureaucracy.

*5. Increased student ability to analyze and solve social problems.

*6. Increased student ability to recognize the distinction between what public figures may say and their motivations for saying it.

*7. Increased student ability to deal with the moral dilemma in politics between principle and compromise.

CREATIVITY SKILLS

1. Increased student ability to run an innovative, creative political campaign.

*Outcomes considered "essential"; the others are considered important.

Curriculum Committee as it looked when it came out of Step 11. Note that they put an asterisk by each outcome they considered "essential," and the others were considered "important."

When Will the Outcomes Occur? Time has always been considered an especially important factor for many *student* outcomes. Particular teaching content and activities do not have much effect until the time a student is "ready" for them. Presumably there are times when curriculum materials and emphases of different types will have maximum influence. Thus, prerequisite experiences and/or courses must often be specified for different advanced courses within a curriculum. Another example is that many students may not be ready to choose a major until they have chosen a vocation.

Outcomes that occur at or prior to graduation are more often a direct focus of planning than are impacts that occur after graduation, because the institution has some control over them. On the other hand, if the relationship of the earlier outcomes to the postgraduate impacts can be ascertained, the later impacts may have some influence on priorities. Furthermore, communications to the general citizenry about outcomes often must have a primary focus on postgraduate impacts—whether they are actual or presumed—because postgraduate outcomes are of special concern to the public.

Another "time" consideration is how long the outcome will endure; for example, is it of long duration or of short duration? Time is also important for planning and management related to nonstudent outcomes, such as research and scholarship outcomes, art forms and works outcomes, and economic outcomes for society. Because of its critical importance to postsecondary education planning and management, "time" was made a dimension of the Outcomes Structure. No categories were assigned to this dimension, however, because (1) agreement could not be reached on such categories, (2) time categories needed vary with the audience and type-of-outcome, and (3) the time categories needed by an institutional official will vary according to philosophy and use context. For example, a curriculum developer will undoubtedly need a quite different set of time categories than will a campus administrator concerned with general campus-wide outcomes. It was decided to leave any specific categorizing (and definitions for those categories) up to each individual using the Outcomes Structure.

STEP 12 Decide on the categories and subcategories you need for the "time dimension."

STEP 13 Next to each of the outcome statements in the lists coming out of Step 11, place the names (code numbers or letters would be more efficient) of all "time" categories that apply to that outcome. You are now ready to analyze and to use the listings of outcomes (one list for each of your important audiences).

See Figure 5 for an illustration of what the final lists—coming out of Step 13—might look like. (Note that the *time* differentiation in the illustration was whether the outcome should be emphasized in upper-division courses [U], lower-division courses [L], or both upper and lower division courses [B].) Keep in mind, however, that this is merely the way a political science curriculum committee at Alpha College designed it. You might very well wish to organize your lists differently.

Process 2: Classifying Outcomes

Some institutions and institutional units have periodically developed lists of desired outcomes or outcome goals and objectives. Taking such a list of outcomes and classifying it through application of the *Outcomes Structure* can provide information to institutional officials that will assist them as they evaluate the breadth as well as the adequacy of the list. Such a procedure may confirm and stimulate the realization that the desired outcomes are concentrated in only a few specific areas, that some are too broad and general, that some are stated in unduly vague terms, that some need to be translated into more specific outcomes (and the Structure can help do this), that few, if any, of the outcomes are in certain areas of supposed concern to the institution or institutional unit, that certain outcomes need to be added to the list, and so forth.

Figure 5

THE FIRST PAGE OF THE OUTCOME LIST FOR STUDENTS MAJORING IN POLITICAL SCIENCE THAT HAD BEEN DEVELOPED BY THE POLITICAL SCIENCE CURRICULUM COMMITTEE AT ALPHA COLLEGE AT THE COMPLETION OF THE FINAL STEP, *STEP 13*

INTERESTS:

B * 1. Increased student interest in the theory, principles, and practices of government and politics.

B * 2. Increased student interest in learning about different political concepts, philosophies, and ideologies.

U 3. Increased student interest in entering politics, government, or public administration.

U 4. Increased student interest in international relations and world views.

U 5. Increased student interest in the analysis and solution of social problems.

U * 6. Increased student interest in constitutional law and jurisprudence.

L * 7. Increased student interest in the dynamics of change in American society.

U * 8. Increased student interest in the public economy and its operation.

DESIRES, AIMS, OR GOALS:

U 1. Increased student desire and intention to prepare for advanced and specialized study in political science.

U 2. Development by students of plans for political science careers in teaching, government, business, and law.

B 3. Development in students of a desire for public service.

B * 4. Development in students of a desire for conducting political analysis and action while they are still students on campus.

B * 5. Development in students of an aim to be a model in the conduct of citzenship responsibilities.

L 6. Development in students of an aim to uphold democracy as our political system.

B * 7. Development in students of a desire to improve the character of the relationships between citizens and government, and of the values and criteria by which quality of political life is judged.

L * 8. Development in students of intentions to uphold citizen rights and liberties, and the separation of church and state.

CITIZENSHIP AND FAMILY MEMBERSHIP SKILLS:

L * 1. Increased student ability to intelligently conduct citizenship responsibilities.

B * 2. Increased student ability to understand the basic political processes and institutions as they operate in different national and cultural contexts.

B * 3. Increased student ability to critically analyze public opinion and propaganda.

U * 4. Increased student ability to analyze voting patterns, political participation, techniques of political action, legislative or governmental actions, and governmental bureaucracy.

B * 5. Increased student ability to analyze and solve social problems.

L * 6. Increased student ability to recognize the distinction between what public figures may say and their motivations for saying it.

U * 7. Increased student ability to deal with the moral dilemma in politics between principle and compromise.

CREATIVITY SKILLS:

U 1. Increased student ability to run an innovative, creative political campaign.

* Outcomes considered "essential"; the others are considered "important."

KEY

L = Lower Division Courses
U = Upper Division Courses
B = Both Upper & Lower Division Courses

Although one person can classify the outcomes in a list, it is suggested that several persons be involved. Included should be representatives of major groups having effective control or a legitimate concern about what the educational outcomes of the institution/institutional unit should be (for example, administrators, faculty, students, and graduates).

Rather than write down by each outcome item the name of the Structure category or categories to which it is assigned, it will be much more efficient and workable to use the code numbers that have been assigned to all categories of the Structure. As indicated earlier, each category of each dimension of the Structure has a code number assigned to it, and by looking at the code number one can deduce the level of detail of the category that has been assigned. (Again see Appendix A for a discussion of the coding scheme for the Structure.) Since few, if any, currently available lists of institution-wide or institutional-unit outcomes reference the time the outcome is expected to occur or give differential indications of who is to receive or be affected by the outcome, the discussion in this section will focus on classifying outcomes into categories of the type-of-outcome dimension. If the outcome statements on your list do specify the time when the outcome is expected or intended to occur or be emphasized, and the audience or audiences who are to receive that outcome, use the same procedures to classify on those dimensions as are outlined below for the type-of-outcome dimension.

The procedures presented below are not limited to use in classifying lists of outcomes and outcome goals or objectives. They can also be used to classify, in terms of outcomes, such things as research findings in the literature, questionnaire items, institutional and program activities aimed at outcomes, needs, campus environments, and philosophical orientations.

STEP 1 Note in Table 3 on page 6 that the first digit of the code number identifies the first-level categories—1 = economic outcomes, 2 = human characteristic outcomes, 3 = knowledge, technology, and art form outcomes, and so forth. (The zeros in the succeeding digits of each code number indicate that the outcome is not being classified at the more refined levels of detail that are available.) In front of each outcome statement on your list, write "1" if it is an economic outcome, "2" if it is a human characteristic outcome, and so on, until all statements in the list are classified at this level of detail. (In each case, leave enough space after the digit so you can add additional digits.)

STEP 2 Table 4 on page 7 shows the second- and third-level categories applying to each first-level category of the type-of-outcome dimension. For each outcome statement on the list that has a "1" in front of it, determine whether the second digit should be "1," "2," "3," or "4" by examining the title of each of the four second-level categories for that major type of outcome (1 = economic access and independence, 2 = economic resources and costs, 3 = economic production, and 4 = other economic outcomes). Each of the second-level categories is defined in Appendix B (page 39) and you may need to refer to those definitions in determining which second-level category specific economic outcomes should be assigned to. Some of the economic outcome statements may be too broadly stated to be classified in any second-level economic outcome category. If they cannot be classified at this level, assign them a second digit of zero. If such an outcome statement applies to two of the categories, you can either assign it two second digits (which will give it two different code numbers) or give it a zero, whichever you prefer.

Next, for all outcomes in the list that have a "2" in front of them, determine which of the nine second-level categories of "human characteristic outcomes" apply. Assign these outcomes a second digit number in the same manner that you did for economic outcomes. If it cannot be classified at this level, give it a second digit of zero; if it is an aspiration outcome, give it a second digit of "1"; if it is a competence and skill outcome, give it a second digit of "2"; and so forth.

In the same manner as you assigned a second digit code to the economic and the human characteristic outcomes on the list, assign second-digit codes to outcomes assigned to the three other first-level categories. When this is done you are ready to classify at the third level of detail, assuming that you desire to classify at that level of detail. For some lists (such as broad overall institutional goals), classifying to the second-level of detail may suffice.

STEP 3 Give a third digit of zero to each outcome statement in the list that has a second digit of zero.

STEP 4 For each outcome statement in the list that has a "11" in front of it (economic access and independence outcomes), determine which of the three third-level categories listed in Table 3 (for that second-level category) applies, and assign it a third digit accordingly (for example, 111 = economic access and 113 = income and standard of living). As with the second-level categories, each third-level category is defined in Appendix B. You may need to look at these definitions to classify at this level of detail. If the outcome cannot be classified at this level of detail, assign it a third digit of zero.

In like manner, assign third digits to the codes for all outcomes on the list that have "12" in front of them, then to all outcomes that have "13" in front of them, then to all outcomes that have "14" in front of them, then to all outcomes that have "21" in front of them, then to all outcomes that have "22" in front of them, and so forth. Once all of the outcomes on the list have been assigned third-digit codes, you are ready to assign fourth-digit codes (once again, assuming that you desire to classify at that level).

STEP 5 If you do not desire to classify at the fourth level of detail, give every outcome statement on the list a fourth digit of zero. If you do desire to classify at the fourth level of detail, start with the first outcome statement on the list and proceed one-by-one to the last item on the list, assigning fourth digit codes as follows:

1— The outcome statement indicates that it is a "maintenance" outcome, an outcome that will result in keeping the status quo, in stabilization, in reproduction, or in preservation.

2— The outcome statement indicates that it is a "change" outcome, an outcome that results in alteration of the status quo, in reorganization, in modification, in revision, or in replacement.

0— The outcome statement: (a) indicates that it is including both maintenance and change, or (b) gives no indication as to whether it is referring to maintenance or to change.

For an example of a case where these procedures were actually applied, see Appendix C. All of the outcomes in the NCHEMS Inventory of Higher Education Outcome Variables and Measures were listed on a sheet. Then one or more four-digit code numbers were assigned to each using the NCHEMS Outcomes Structure and going through the five steps that have been described in this section. Note that the procedures were modified slightly. Instead of placing the Structure code numbers in front of the outcomes on the list (as specified in Step 1), they were placed behind the outcome statements to facilitate including the descriptive "type-of-outcome" name for each Structure category assigned. Modifications of the procedures outlined here (or of the content of the Structure itself), to meet special local needs or situations, are encouraged.

Appendix C has another use in addition to illustrating the application of the five steps outlined above. Those who have in the past applied the NCHEMS Inventory to institutional planning functions can use Appendix C to transform their previous work into Outcomes Structure terms, if they desire to do so.

After examining the distribution of code numbers, you may decide that too many outcomes on the list are not specific enough for your needs, or that

important outcome areas are not emphasized enough or are completely ignored by the list. If this is the case, you may wish to expand and in other ways modify the outcomes list. Such expansion and other modifications can be accomplished by following the procedures outlined for Process 1 on pages 15-24

Process 3: Storing and Retrieving Outcomes Information

The statement was made in the introduction to this document that "having a wide variety of outcomes information without any structure is analogous to possessing a file cabinet in which the contents are arranged randomly." Outcome information to be stored could consist of a pool of thousands of behavioral objectives that have been collected from different curriculum developers, a pool of outcome questionnaire items that have been collected from different developers of outcomes instruments, a pool of different measures that have been developed for different outcome variables, a collection of references from the literature of postsecondary education outcomes, and so on. They could be stored in a filing cabinet, in a microfiche or microfilm information storage and retrieval system, in a computerized information storage and retrieval system, or in other ways.

In most cases of applying the outcomes Structure to develop an outcomes information storage and retrieval system, use of the coding scheme described in Appendix A will be necessary. This is true especially if one is developing a microfiche or computerized system that includes hundreds or even thousands of outcome categories. As is apparent in Appendix A, the storage system can be a one-dimension system, a two-dimension system, or a three-dimension system. It can be a very simple or a very complex (although fairly straightforward in concept) system, depending on the need of the local user.

NCHEMS currently is developing a computerized information bank containing selected information about outcomes studies and other literary works that can contribute to a synthesis or analysis relating to the development of outcome indicators and measures, correlates of outcome occurrence, research questions relating to outcomes, strategies for increasing or improving outcomes, impacts that can be expected to result from particular outputs and combinations of outputs, and so forth. This computerized information bank, along with a manual card file of literature abstracts, illustrates the application of the Structure to the process of developing a storage and retrieval system for outcomes information. Based on this experience, a number of general steps for this basic process are outlined below.

STEP 1 Obtain input from the potential users of the system concerning: (a) needs for the system, (b) the possible ways they would use the system, and (c) criteria the system would have to meet to be fully applicable to their needs. In addition, logically consider what other demands on the system might be expected to develop once it becomes accepted and proves itself.

STEP 2 Based on Step 1, outline in list form the purposes of the system. For example, some of the major purposes for the NCHEMS system that is being developed are: (a) development of a synthesis of the literature for each measure in the NCHEMS *Outcomes Measures and Procedures Manual* (OMPM) that relates to its validity and reliability, (b) expansion of the OMPM to include additional measures in the areas already covered and measures in areas not addressed previously, (c) expansion of the research and scholarship section of the Outcomes Structure, (d) development of lists of outcome measures and indicators separately by audience for selected type-of-outcome categories in the Outcomes Structure, (e) backup analysis and support for the development of new student outcome indicators and measures, and (f) analyses leading to improved application of outcomes information to institutional and program planning and management.

STEP 3 Based on Step 2, plus convenience, cost, political and other considerations, determine what basic type of system it should be, for example, manual card files, notebooks of organized information sheets, filing

cabinets, a manual or automized microfiche or microfilm system, an on-line computer system, a computerized tape system, or a computerized disk system. Combination types should also be considered, like the NCHEMS example referred to above.

STEP 4 For each purpose of Step 2, develop a list of criteria that the system should meet, taking into consideration the input from potential users gathered in Step 1.

STEP 5 Determine whether the Outcomes Structure will be the most desirable basic framework around which to structure and organize the filing system. If it will not, decide on a framework to be used—whether it is a modified version of the Structure or something completely different.

STEP 6 Determine what specific data should be entered into the master file and the subfiles of the system. For example, at this stage of development of the NCHEMS system (and this may change later) the following items of information about each study or other source are being entered into the master computer file: a source code, a unique identification number, author/title information, bibliographic data, postsecondary education entity or entities being focused on, type of study, type(s) of analysis, its application focus, its assigned NCHEMS Outcomes Inventory code number, its Outcomes Structure code number. Also determine what form each set of data should take, for example, should it be coded or written out.

STEP 7 Design the source-identification, data-collection, and data-preparation procedures (such as coding activities, quality control activities like inspecting and editing, and keypunching or other recording activities) for the system.

STEP 8 Design the procedures for entering the data into the system, fitting new data with the data already there, and modifying or deleting data later should that become necessary.

STEP 9 Design appropriate procedures for manipulating the data within the system (sorting, matching, aggregating, tabulating, reforming, applying analytical techniques, and so forth) that will be flexible enough to meet all of the planned objectives for use of the system.

STEP 10 Design appropriate procedures for retrieving the desired and appropriate data and analytic or synthesized information from the system, and applying those data to the problem at hand.

PART IV
ORIENTING INSTITUTIONAL AND PROGRAM FACULTY AND STAFF TO THE OUTCOMES STRUCTURE AND TRAINING THEM IN ITS USE

During the CASC Outcomes Learning Task Force project and the CASC/NCHEMS joint project discussed previously it was found that: (1) Most people on the participating campuses had never really considered what they were trying to accomplish for students in *very systematic, concrete, and specific outcome terms*; rather they were accustomed to thinking solely in terms of activities and tasks they wanted to accomplish, although there were undoubtedly outcome reasons "in the back of their minds" for wanting these activities. (2) People at those campuses, and particularly faculty, found it uncomfortable to try to talk in systematic, concrete outcome terms about what they were trying to accomplish for students; and a number of them exhibited initial resistance to trying to apply the Outcomes Structure to their situation, although the anxiety often seemed to subside as the interview session continued. (3) Interviewees had to really strain to go from priority outcome categories to especially important, specific, concrete, observable outcomes within those categories—but with interviewer support and assistance they were able to do so successfully. (4) The orientation materials distributed to the interviewees ahead of time tended not to be read because they were too bulky and complex looking, and the workshop—although helpful—was not sufficient for orienting campus personnel to outcomes concepts and the Outcomes Structure. Clearly, small group discussion, or on a one-to-one basis, is needed in addition to brief, attractive orientation materials and effectively organized and carried out workshops. (5) The fact that the CASC/NCHEMS project interviews were more successful in introducing a cut-down version of the type-of-outcome set of categories (prior to going to the entire set) than were the CASC project interviews in going directly to the entire set of categories, and that it was found desirable at Spring Arbor College to use an abbreviated set with no code numbers in their CASC/NCHEMS project follow-up activities on campus, suggests that the full Structure should not be presented during the initial stages of one's on-campus orientation program. (6) The University of Colorado person, who had worked with outcomes concepts over a period of several years, was able to easily take the Outcomes Structure procedures in this document and apply them effectively and efficiently without any orientation or help of any kind. This suggests that once they have been properly oriented to outcomes concepts and the Structure, campus personnel may be expected to use them effectively and efficiently, although many probably will still need training assistance in how to correctly apply them to decision making.

Based on experiences in the trial projects discussed above, plus other experiences at NCHEMS and elsewhere, a set of general guidelines have been developed and presented below for use by those who wish to introduce outcome concepts and the NCHEMS Outcomes Structure on campus and to have them become an integral part of the campus planning, management, and evaluation process. Modification of the suggested procedures to meet the local situation and conditions is encouraged, and it is hoped that the guidelines can be expanded, improved, and made more specific as input is received from people trying to orient their campuses to outcome concepts and the Structure (or modified versions of it) in different contexts across the country.

1. *Do Your Homework*
   Before you can communicate effectively to others about outcome concepts and the Out-

comes Structure, you must really understand them yourself—including cautions that need to be taken in using them—and feel at ease in discussing them with others. To do this will require thorough study of this manual and thinking that goes beyond the manual to the situation on your campus. It is suggested that you also read the conceptual document which is a companion piece to this manual, designed for those who desire a detailed and in-depth discussion of educational outcomes and the Outcomes Structure (Lenning, Lee, Micek, and Service, 1977). Chapter 2 of that document describes six attributes of an educational outcome plus five other factors that are important for really understanding and interpreting a particular outcome; Chapter 3 contains detailed background discussion about each formal dimension of the Outcomes Structure and goes into detail about the Structure as a whole; and Chapter 4 lists the nine basic principles followed in developing the Structure (which were also used to evaluate it) and discusses the available information that suggests how well these criteria were met. If you would also like to compare the Structure to other attempts that have been made through the years to structure outcomes and outcome-related concepts such as goals, see Lenning (1977a), which is also available from NCHEMS.

2. *Prepare Draft Copy for a Brief Brochure That Effectively Introduces Relevant Outcomes Concepts and the Structure.*
   To raise initial awareness on campus about useful outcomes concepts and the Structure, and to bring about curiosity and interest in exploring this further, a short, concise, and attractive introductory brochure will be needed. An example brochure or flier from which you can build is shown in Appendix D; you may prefer an entirely different concept and approach for your brochure, however.

3. *Prepare Yourself to Respond to Criticisms That Might Be Raised*
   You can expect that various people on your campus will think of important critical questions to raise about outcome concepts and the Outcomes Structure, and it is important that you be prepared to respond openly and honestly to such questions. Figure 6 lists cautions and potential problems that were mentioned by interviewees in the joint CASC/NCHEMS project. Possible responses to the criticisms implied or raised directly here, plus criticisms raised by other reviewers of the Structure—that are reprinted from Lenning, Lee, Micek, and Service (1977)—are presented in Appendix E.

4. *Get the Concurrence of Top-Level Management about the Need to Proceed Further*
   Top-level administrative personnel—for example, the president—may have asked you to examine, become familiar with, and explore the usefulness of the Structure and outcomes concepts like those discussed here, in which case you should probably now share your thinking at this point with them and make recommendations to proceed further or not proceed further. If, however, your interest in the subject and your exploration in Steps 1-3 were at your own initiative and you feel positive at this point about the usefulness of the outcomes concepts and the Structure for your campus, now would probably be an appropriate time to introduce the subject to appropriate top-level administrators (in a way that will interest them in it) and obtain their permission to develop some plans for introducing outcomes concepts and the Structure to personnel on your campus. Do not go into too much detail in your presentation, keep it short, and point out the practical usefulness that has been found by people on other campuses (for example, in the CASC/NCHEMS project). Take into consideration the local situation and political realities—for example, if management by objectives is "in vogue" on your campus, show how the Structure can contribute to that process; but if it is not, emphasize rather how the Structure can help campus people to *clarify* and *stimulate* their thinking about what they are really trying to accomplish in their programs and to delineate in concrete terms why they are making use of particular approaches and activities. ***At this stage it is important to have obtained authorization from the president, or his or her designate, to proceed further.***

5. *Develop Preliminary Plans and Materials for a Campus Orientation Workshop*
   For effective dissemination of outcome concepts and the Structure, a well-designed orientation workshop will be essential. A possible

Figure 6

CAUTIONS AND POTENTIAL PROBLEMS WITH THE NCHEMS OUTCOMES STRUCTURE THAT WERE MENTIONED BY VARIOUS INTERVIEWEES IN THE CASC/NCHEMS PROJECT[a]

- Need to get students and alumni involved in outcome planning also.
- Need to show people how it will help.
- This kind of self-analysis is very important, but will it make any difference on the campus?
- Might work if you have the right setting, like a workshop away from the campus.
- Don't use it unless you have the time and energy to change.
- One needs time away from day-to-day pressures in order to implement this.
- Resistance to the "bureaucratese" in which the document is written—I don't want to go to the trouble of using it unless you can show me that it is directly relevant to my department and its students.
- Potentially very time consuming—safeguards should be built in to insure that the time drain is not too great (find out the outcomes of the system that can be achieved in a short time).
- It may promise more than it delivers.
- Is the system *really* hierarchical—is hierarchy the appropriate model?
- Need funds for the department to develop long-term workshops to incorporate use of the Structure.
- If it is presented properly, students could become interested in the Structure.
- I like it. Dynamite! It could be such a long-term thing, however.
- Difficult to reach consensus on such things—needs a good leader.
- Takes too much time—what is needed is funds for a week's staff retreat in a retreat setting.
- More useful at small colleges than elsewhere because we have more of a chance to see and understand the activities which lead to outcomes (the why of outcomes) and we get to know our students very well.
- Need to start using this in goal setting at the institution-wide level. If you start at the department level will go in all directions so that when people get together at the institution-wide level will be so far apart will never be able to reconcile.
- It is easier to think of outcomes in specific and concrete terms at the department level, so should start applying the Structure to reach consensus at that level before you try to reach some consensus on college-wide goals.
- Need to have total faculty involvement at the departmental level if you are going to make good use of the Structure.
- An excellent instrument if used and the system instructions understood and participated in by most of the faculty in the small college. The problem may lie in attitudes—a strong disposition and loyalty to the liberal studies and classical structure . . . time constraints, and using the Structure as they envision it. Once it is learned and implemented, however, the negatives could be reversed and it could speed the processes of planning and development.
- A problem with the Structure concerns differences in definitions, and it includes jargonese.
- As a student majoring in religious education I tend to think in more general terms. Therefore, it is limiting—it limits my options. I would prefer a completely open-ended approach.
- It would be useful to the extent that it serves rather than enslaves. Minimal outcomes should be emphasized. Should let more happen beyond the stated outcomes.
- I question its real utility, although it is an asset in that it is systematized.
- I heard from a staff member who attended the workshop yesterday morning that a lot of good ideas were presented, but that they were perhaps overly idealistic.
- People need to see the connections sooner to their on going tasks. Needed is a week at a retreat setting working with faculty on institutional goals and objectives, and how to implement them.

[a] Reprinted from Lenning (1977b).

agenda, sample overhead transparencies, a work exercise that is meant to stimulate thinking and promote concrete discussion, and a role-playing simulation—based on the workshops presented at the colleges participating in the joint CASC/NCHEMS trial project—are provided in Appendix F. Based on these or your own thinking, develop some preliminary plans and possible materials for use in such a workshop on your campus. Also develop preliminary plans for evaluating the workshop(s) and for using the evaluation data—see Step 9. A majority of the participants in the CASC/NCHEMS workshops found them interesting and stimulating, and especially after certain modifications were made, so there is a precedent for expecting that such a workshop can be helpful. *However, follow-up discussion and activities with small groups and individuals will be important.* In the CASC/NCHEMS project, it was not until the follow-up interviews with individuals that many of those attending the workshop really started to understand the Structure and its use. Interview discussion tended to clarify and reinforce the workshop content for them, and they felt free to ask questions and to raise personal concerns.

6. *Try Out Your Ideas and Draft Materials on Trusted Friends*
   It will be important to discuss your ideas, and the draft materials developed in Steps 2 and 5, in depth with a few appropriate trusted friends and colleagues, preferably some off the campus as well as on. If students are to be involved in the workshop, some of them should also be involved in this preliminary tryout. Based on the reactions and suggestions received in these conversations, make desired modifications in your preliminary plans and materials.

7. *Establish an "Exploration and Planning" Committee concerning a Campus Orientation Effort*
   The Structure and outcome concepts have potentially important applications within all major departments and offices on campus. Therefore, it would be desirable to form an "exploration and planning" committee having representatives from the major groups on campus (including a student representative). If possible, try to limit the size of the committee to a number of participants that facilitates involvement, working together, and effective desicion making—for example, many people feel that a committee with more than 12-15 members becomes unwieldy. In your letter inviting them to participate it would be desirable to enclose a copy of the draft brochure, tell them about your exploration into the topic and your conclusion that the Structure has much potential for being of real value to your campus and its subunits, outline the charge given to the committee, and inform them that this committee and its efforts have been authorized by a directive of the president (An initial letter of appointment to the committee should be received by them from the president a few days before your informational letter, which will emphasize to them the importance of the committee's work and help motivate them to want to get actively involved.)

8. *Reevaluate Your Ideas, Using the Committee, and Then Complete Plans and Materials*
   Present the ideas, preliminary plans, and materials developed to the committee in the manner you would use in your orientation program, gain their support, and have them help you modify and complete the plans as needed for an efficient and effective program of communication and orientation to the campus community. Because the various important sectors of the campus are represented on the committee, the members can provide valuable views on what is needed to make the program effective for the sector they represent. Furthermore, they can communicate their interest in outcomes to their colleagues and help to carry out the plans for their sector of the campus, including the all-important follow-up interviews, consultation, and other assistance.

   Whether the workshop should be a campus-wide event or consist of a series of workshops separately for a single or related sectors of the campus depends on the local situation (for example, a very small institution might prefer one central workshop). Another possibility is to have a central workshop involving selected people from each sector and then have these people help plan and put on a similar workshop—that contains more pertinent case examples—for their sectors of the campus.

Because on-campus personnel are very busy, having the workshop prior to the start of school or between terms, extending it over two days (for example, from noon to noon), and placing it in a retreat setting are desirable. If it is necessary to have it during the school year, a carefully selected Saturday may be an option, or splitting it up into an hour or so a week for several weeks may be necessary.

It is important to have the workshop(s) enjoyable and yet serious, fast-paced and yet not so rapid-moving that understanding is hindered, well organized and disciplined and yet informal and friendly.

9. *Distribute Brochures and Conduct Workshops as Planned—Then Evaluate*
Plans for evaluating the reception of and reactions to the brochure and workshop(s), for determining what more information and clarifications are needed by different people, and for determining the need to make available follow-up implementation and consultative assistance and/or training workshops to help apply the Structure and outcomes concepts to actual planning, evaluation, and other pertinent problems, should have been completed in Step 8. It would be useful also to have a specially designed questionnaire (tailored to the local situation) to be completed immediately after the workshops or within several days, plus follow-up interviews with individuals or small groups.

10. *Make Available and Publicize the Availability of Follow-Up Application Assistance*
Based on the evaluation of Step 9 and deliberations of the planning committee, develop, make available, and let units throughout the campus know about the availability of assistance in applying outcomes concepts and the Structure to particular planning, management, and evaluation activities. This could include advisory and consulting assistance, in-depth training workshops for staff who will be applying outcome concepts and the Structure, and direct assistance in applying the Structure and outcome concepts to help meet pertinent needs.

Appendix A

The Coding Scheme for the Structure

The successful use of the Outcomes Structure for all three basic processes discussed in Part III of this document rests on the fact that for each dimension there are successive levels of increasingly detailed categories. Assigned to each category is a code number that has as many digits as there are levels of detail in the dimension, where the first digit identifies the first-level category, the second digit identifies the second-level category within the first level category that was specified (a zero indicates that none or all of them are included), and so forth. As discussed in Step 8 of Process 1 (page 20), the user of the Structure can add additional levels of detail if desired, and this adds one digit to each code number for every level of detail added. Multi-dimensional categories have code numbers consisting of sets of digits (each identifying a category for one of the dimensions) separated by decimal points.

The code numbers provide an abbreviated and more economical way of referring to categories in the Structure than using descriptive terminology. For example, it is much easier to say or write "13.1132.22" than "long-duration change in income and standard of living appearing after graduation for the family and relatives of students and former students." The coding for each dimension, and for multi-dimensional categories, is discussed separately in the sections that follow.

Coding for the "Audience" Dimension Categories

The "audience" dimension of the Structure refers to the people, the communities, or the things that receive or are affected by (or that are intended to receive or be affected by) the outcome of concern. The categories and subcategories of the audience dimension (along with definitions where needed) are shown in Tables 1 and 2 on pages 4 and 5. Note that there are two levels of detail, with the first digit of each code number identifying the first-level categories and the second digit identifying the second-level categories. Note also that within a level, the subcategories are listed in the order of a logical (but presumably neutral, valuewise) progression, and numbered consecutively. A digit of zero indicates that none of those categories at this level apply (that this level is being bypassed) or that all of them apply.

If more detail is needed for any second-level category (and this may often be the case), an additional level of detail can be added to the dimension, as outlined in the discussion of Step 3 on page 16. The third-level categories for each second-level category would be represented by a third digit added to the code number. The third-level categories would be ordered within each second-level category according to some logical, but neutral, progression or else alphabetically, and they would then be numbered consecutively. A third digit of zero would represent cases where the "audience" is broad or unsegmented at this level of detail.

Still more levels of detail in the audience dimension could be added if needed. A fourth level of detail would necessitate four-digit codes, a fifth level of detail would necessitate five-digit codes, and so forth.

Coding for the "Type-of-Outcome" Dimension Categories

The "type-of-outcome" dimension identifies whether or not the outcome involves a change in status (maintenance versus change), and the basic entity that is maintained or changed (such as knowledge and understanding, skills and competencies, attitudes and values, certification status, income, standard of living, social interactions, and art forms or expression). This dimension of the Structure has four levels of detail, with categories for the first three levels shown in Tables 3 and 4 on pages 6-7, and with definitions for the categories given in Appendix B (pages 39 through 51). Categories and definitions for the fourth level of detail ("maintenance" versus "change") are on page 20.

Because there are four levels of detail, each category of the type-of-outcome dimension is represented by a four-digit code number. Within each of the first three levels of detail, the categories are ordered alphabetically (except for the "other" categories, which are always placed last), and the digit for each level of detail numbered accordingly. The two categories for the fourth level of detail go from status quo (1) to alteration of the status quo (2), and once again a digit of zero indicates that no differentiation is being made.

If there is a need for more detail, additional levels of detail can also be added for the type-of-outcome dimension, as discussed in Step 9 on page 20. A fifth level of detail would necessitate a five-digit code number for the categories of this dimension, and an extra digit would have to be added for each other level of detail added.

Coding for "Time" Dimension Categories

The "time" dimension refers to when the outcome occurs and/or how long it lasts. Because agreement could not be reached on any categories and the categories needed vary depending on the audience of concern and on the situation, no categories were assigned to this dimension of the Structure. After evaluating his or her need, the user should decide how many levels of detail are needed for this dimension, decide on categories for each level, order the categories at each level (separately for each category at the next higher level) alphabetically or in some neutral and logical progression, and number each category consecutively so that all categories will have assigned code numbers. An example of this is Table 5 on page 8.

Coding for Multi-Dimension Categories

Each of the 33 "audience" categories and subcategories in the Structure can be divided into the 224 different categories and subcategories of the "type-of-outcome" dimension, which results in 7,392 possible audience/type-of-outcome combination categories for which information can be sorted. The code number for such a combination category is the audience code number and the type-of-outcome code number separated by a decimal point. For example, the code number of "change in intellectual skills of students" would be 11.2252, and the code number of "maintaining the economic productivity of the local community" would be 31.1311. If one additional level of detail were added to both dimensions because of local needs for additional specificity, there would be three digits in the set of numbers prior to the decimal point and five digits in the set of numbers after the decimal point.

If you add categories for the "time" dimension, the code number for each three-dimension category consists of three sets of numbers separated by decimal points, where the code for the "audience" dimension is listed first, the code for the "type-of-outcome" dimension is listed second, and the code for the "time" dimension is listed last. Suppose, for example, that a user of the Structure developed the following student/former student categories and subcategories for "time," and assigned the indicated code numbers to each (note that two levels of detail are shown):

10. Short-Duration Outcomes	
11. Short-duration outcomes appearing at or prior to graduation	12. Short-duration outcomes appearing after graduation

20. Long-Duration Outcomes	
21. Long-duration outcomes appearing at or prior to graduation	22. Long-duration outcomes appearing after graduation

The code number for "long-duration change in income and standard of living appearing after graduation for the family and relatives of students" would be 13.1132.22, assuming that the user of the Structure did not add levels of detail to either the "audience" or the "type-of-outcome" dimension. Similarly, 31.3001.21 would be the code number for "long-duration knowledge, technology, and art form maintenance outcomes appearing at or prior to graduation of students, for the local community" (an example would be art students at the college helping local community residents keep local art objects from deteriorating).

Appendix B

Definitions and Outcome Measure or Indicator Examples For the Type-of-Outcome Subcategories

Page

Economic Outcomes 40

Human Characteristics Outcomes 41

Knowledge, Technology, and Art Form Outcomes 48

Resource and Service Provision Outcomes 50

Other Maintenance and Change Outcomes 51

The code number for each category is given in the left margin (if the focus is on only maintenance the fourth digit would become "1," or if the focus is on only change the fourth digit would become "2"). Category definitions are provided in the next column, and several examples of possible indicators or measures of such outcomes are provided in the right-hand column for each category. *The measures and indicators listed are only illustrative examples.* The majority of examples given are for individuals, but it should be remembered that composites of these can often serve as indicators for communities and other populations. Future NCHEMS work will include the development of relatively comprehensive lists of indicators for selected categories of the structure.

Category Code Number	1000 ECONOMIC OUTCOMES*	
1100	*Economic Access and Independence Outcomes*—Outcomes that relate to the entrance into, obtainability, flexibility, and levels and amounts of monetary or pecuniary situations, conditions, and characteristics.	
	(Categories)	(Examples of Outcome Measures or Indicators)
1110	*Economic Access*—The amount of openness or ease of admittance to economic opportunities, advancement.	Percentage of students obtaining their first full-time job in the field of their choice within a specified time after graduation. The number of alternatives for an entry level job open to minority group graduates compared to minority group nongraduates.
1120	*Economic Flexibility, Adaptability, and Security*—The amounts of self-sufficiency, liberty, frugality, thrift, self-government, confidence, certainty, safeguards, stability, and adjustment that are exhibited in economic matters.	Geographic mobility of college graduates compared to those not attending college. Self-report of college graduates about the economic security for them and their families, and the contribution of college to this.
1130	*Income and Standard of Living*—Amount of profits, return on investment, necessities and comforts of life, wealth, and other signs of economic "well-being" that are obtained or possessed. Included is direct support provided to individuals and the community through local purchases by the educational institution and through staff salaries and wages.	Amount of annual and lifetime earnings of those attending college compared to those not attending college. Average student and/or former student reported scores on scales measuring perceptions and evaluations of their current and desired socio-economic level.
1200	*Economic Resources and Costs*—Outcomes that relate to the amount and type of material, energy, effort, people, organization, and other economic assets that are available or that are expended in economic activities and production.	
	(Categories)	(Examples of Outcome Measures or Indicators)
1210	*Economic Costs and Efficiency*—The amounts of sacrifice, effort, expenditure, and waste present in economic activities and production.	The absenteeism and tardiness on-the-job of college graduates as compared to nonstudents. The number of firms that use the college degree as an inexpensive screening device that allows them to hire qualified employees at minimum initial cost to the firm.
1220	*Economic Resources (including employees)*—The assets available that can aid economic production, distribution, and gain.	Percentage of college graduates employed in management positions within a specified time after graduation. Average number of patents and/or copyrights received per student, former student, and/or faculty member.
1300	*Economic Production*—Outcomes that relate to the creation of goods, services, and economic value.	
	(Categories)	(Examples of Outcome Measures or Indicators)
1310	*Economic Productivity and Production*—The value of goods and services that are created or produced by and within specific enterprises of "audiences" or clients of the educational institution, and especially in relation to the resources expended in the enterprise.	Percentage of college graduates who can adequately do their personal typing and complete their own income tax forms as a result of having attended college. Expert judges' ratings of the amount of increased worker production and higher worker motivation that results from having attended college.
1320	*Economic Services Provided*—Amount and type of direct-assistance activities provided by the educational institution or its subunits in the economic area.	Dollar amount of goods and services bought in the local community by the institution, its staff, and its students. Number of hours of consultation in the business area provided to area companies and institutions by the university's college of business.
1400	*Other Economic Outcomes*—An example would be that a company with a large payroll located in this community rather than another similar community because there is a more prestigious college here.	

*Many of the subcategories for this category were suggested by the economic outputs classification developed by Goodman (1971).

Category Code Number	2000 HUMAN CHARACTERISTIC OUTCOMES	
2100	*Aspirations*—Levels, patterns, and directions (in persons, groups, organizations, or communities) of interests, desires, drives, ambitions, goals, and intentions.	
	(Categories)	(Examples of Outcome Measures of Indicators)
2110	*Desires, Aims, or Goals*—Places, conditions, things, or other ends that individuals and/or groups crave, toward which they have ambition, or that they intend to reach because of importance to them.	Changes in observed desires from college entrance to graduation. Changes in the reported aspirations for graduate school as a class proceeds through undergraduate school. Self-report of changes in goals and aspirations as a result of college.
2120	*Dislikes, Likes, and Interests*—The persons or types of persons, objects, content areas, occupations and other things and situations for which there is a preference or antipathy.	The reported likes and dislikes of persons before college as compared to after graduation, and comparison with such change over the same period of time for those the same age not attending college. Score or change in score on an interest inventory, e.g., Strong Vocational Interest Blank, Kuder General Interest Survey, Kuder Occupational Interest Survey, ACT Interest Inventory.* Self-report of changes in interests as a result of college.
2130	*Motivation or Drive Level*—The intensity of striving toward a goal that is elicited by a need or other stimulus.	Score or change in score on an instrument that measures "need for achievement" or "achievement motivation," e.g., the Strong Vocational Interest Blank Academic Achievement Scale, the College Student Questionnaire Motivation for Grades Scale, the California Psychological Inventory Achievement Scales, Personal Value Inventory. Self-report of changes in motivation level as a result of college.
2140	*Other Aspirational Outcomes*	
2200	*Competence and Skills*—Levels, patterns, and direction of ability, capability, proficiency, and talent of different kinds.	
	(Categories)	(Examples of Outcome Measures or Indicators)
2210	*Academic Skills*—The amount of ability or competence in taking tests, earning good grades, persisting in college, etc. without regard to the amount of cognitive learning that has taken place.	Grades earned when the effect of ability, motivation, and other such factors have been controlled. Persistence in college when the effects of ability, motivation, and other such factors have been cancelled out. Score or change in score on a test of study skills, e.g., Brown-Holtzman Survey of Study Habits and Attitudes, Comprehensive Test of Basic Study Skills.
2220	*Citizenship and Family Membership Skills*—The ability or competence to perform relative to the rights, duties, and privileges of a member of a family, community, state or nation; for example, competence in managing family finances, being an effective consumer, and evaluating political issues.	Self-report of abilities pertaining specifically to citizenship and home membership that college accentuated. Evaluation by others of citizenship and home membership skills mastery exhibited. Score or change in score on the Vineland Social Maturity Scales.

*As an example, one could at graduation compare interest test scores of college students to a group of their high school classmates not attending college who had similar interests in high school. As another example, one could look at interest test change scores for college students, adjusted for initial level.

Category Code Number	2000 HUMAN CHARACTERISTIC OUTCOMES (continued)	
2230	*Creativity Skills*—The amount of ability or competence in designing, producing, or otherwise bringing into existence original perspectives, explanations, and implementations.	Score or change in score on a test that measures originality and creative ability, e.g., Minnesota Test of Creative Thinking, Test of Creative Ability, Guilford's Alternate Uses Test, Sixteen Personality Factors Questionnaire Creativity Scale. Evaluation by judges of creative ability demonstrated in a building or forming task.
2240	*Expression and Communication Skills*—The amount of ability or competence in conveying information, attitudes, or emotions on a one-to-one basis and/or to large or small groups or populations, by whatever media, in order to inform, challenge, uplift, and/or persuade, etc., and in receiving and interpreting such communications—through reading, writing, speaking, listening, touching, body movement, silence, and cultural arts like acting, painting, sculpturing, singing, playing musical instruments, etc.	Score or change in score on tests that measure the ability to communicate or express oneself. Judges' rating in a debate or speech contest. Judges' rating of expression in a music, art, or ballet contest.
2250	*Intellectual Skills*—The amount of ability or competence in formulating and analyzing problems, comprehending and understanding, synthesizing information, evaluating information, implementing a solution to a problem, and in locating, retaining, and filtering relevant knowledge.	Score or change in score on a test that measures ability to analyze and solve problems and to make inferences, e.g., California Test of Mental Maturity, Watson-Glazer Critical Thinking Appraisal, California Psychological Inventory Intellectual Efficiency Scale. Self-report of changes in analytical ability as a result of college.
2260	*Interpersonal, Leadership, and Organizational Skills*—The amount of ability or competence in effectively living and interacting with others, social organizing, being a congenial friend and companion, establishing courses of action for others, and influencing others to follow.	Leadership awards. Self perceptions and evaluation of interpersonal and leadership ability. Perceptions by judges of interpersonal and leadership skills. Score or change in score on a test that measures leadership and interpersonal ability, e.g., California Psychological Inventory Leadership Scale, Chapin Social Insight Scale.
2270	*Occupational Skills*—The amount of ability or competence in the special, unique skills required by particular occupations, and in seeking, gaining, and maintaining a particular level and kind of employment.	Spatial relations test scores for someone who is, or is going to be, an artist. Demonstrated ability in writing FORTRAN or COBOL for someone who is, or is going to be, a computer programmer. Score or change in score on the Bennett Mechanical Comprehension Test.
2280	*Physical and Motor Skills*—The ability or competence in tasks requiring physical coordination, dexterity, manipulation, and other muscular or motor skills.	Score or change in score on tests that measure motor skills, e.g., Crissey Dexterity Test, Minnesota Rate of Manipulation Test. Judges' scores on skill events in athletic competition such as gymnastics, diving, and figure skating.
2290	*Other Skill Outcomes*—Examples are the ability to teach effectively, to handle one's leisure, etc.	
2300	*Morale, Satisfaction, and Affective Characteristics*—Levels, patterns, and directions of characteristics typified by emotion.	
	(Categories)	(Examples of Outcome Measures or Indicators)
2310	*Attitudes*—The disposition or tendency to respond either positively or negatively to particular persons or types of persons, things, situations, etc. It is a predisposition to act in a certain way. AND *Values*—A strong preference based on a conception of what is desirable, important, and worthy of esteem. Values affect an individual's actions and thoughts toward others.	Score or change in score on an attitude scale, e.g., Thurstone and Chave's Scale for Measuring Attitudes Toward the Church, College Student Questionnaire Part I, Adorno Ethnocentrism Scale, Shaw and Wright Scales for the Measurement of Attitudes. Self-report of one's attitudes and the effect of college on them. Score or change in score on an instrument that assesses values, e.g., Alport-Vernon-Lindsey Study of Values, Differential Value Profile, Work Values Inventory. Self-report of one's values and the effect of college on helping to clarify them.

Category Code Number	2000 HUMAN CHARACTERISTIC OUTCOMES (continued)	
2320	*Beliefs, Commitments, and Philosophy of Life*—The acceptance and internalization of particular propositions or declarations; the particular things that one is convinced are true. The held view of what "man" is, the purposes and reasons for a person's existence, and the system of principles and laws that should govern his/her thought, morals, character, and conduct or behavior. Included is the promotion of and the adherence to the conventions, practices, and teachings of religious organizations or sects.	Score or change in score on instruments that assess beliefs, e.g., Harvey's Conceptual Systems Test, Inventory of Beliefs. Self-report of one's beliefs and commitments and the effect of college on them. The membership and participation in, and support of, a particular religious organization or cause prior to as compared with after college. Self-report of one's philosophy of life and the effect of college on clarifying and organizing it.
2330	*Feelings and Emotions*—The disposition or tendency to respond or not respond subjectively to stimuli and the ability to control or not control such expressions, i.e., feelings of anguish or distress, anticipation, anxiety, concern, contentment, empathy, excitement, fear, frustration, happiness and joy, humor, lethargy, love, pleasure, satisfaction, sorrow, etc.	Openness and acceptance of feelings before college compared to after college. Development of an *appreciation* of different cultures and a wide range of human values as a result of college. Greater reported satisfaction with life as a result of college.
2340	*Mores, Customs, and Standards of Conduct*—Social and cultural practices, rules, and conventions designed to guide personal and corporate behavior. They have strong ethical or moral significance according to tradition and are enforced by social disapproval of violations.	Self-report of the effect of college on assimilation or internalization of the customs of community or society. Score or change in score on the California Psychological Inventory Socialization Scale. The adherence to particular mores or social customs prior to college as compared to after college. The amount of subjectivity and emotion guiding one's standards of conduct prior to college as compared to after college.
2350	*Other Affective Outcomes*	
2400	*Perceptual Characteristics*—Levels, patterns, and directions of consciousness, awareness, and sensitivity exhibited, and the view(s) or concept(s) of self, others, surroundings, events, ideas, etc.	
	(Categories)	(Examples of Outcome Measures or Indicators)
2410	*Perceptual Awareness and Sensitivity*—The amount of consciousness or awareness of, or sensitivity to, stimuli that are exhibited by individuals or groups.	Increased sensitivity to needs and emotional cues provided by others. Increased alertness to the opportunities confronting one.
2420	*Perception of Self*—The view held about oneself; the characteristics that are perceived, i.e., self concept.	Development of positive self-regard and self-confidence as a result of college. Score or change in score on a self-concept scale, e.g., Adjective Check List, California Psychological Inventory Self Acceptance Scale, Tennessee Self Concept Scale.
2430	*Perception of Others*—The manner in which other individuals and particular groups of others are viewed or perceived; the characteristics that are perceived.	Reports by observers about how a person's respect for others has changed as a result of college. Self-report of how one's view of others has changed as a result of college.
2440	*Perception of Things*—The view one holds (i.e., the characteristics noted) of ideas or other things being examined with the physical senses.	Increased respect for the ideas of others as result of college. Movement as a result of college experiences from seeing things as all "black and white" to complex "grays."
2450	*Other Perceptual Outcomes*	

Category Code Number	2000 HUMAN CHARACTERISTIC OUTCOMES (continued)	
2500	*Personality and Personal Coping Characteristics*—Levels, patterns, and directions of human conditions, factors, and traits related specifically to the mind and mental processes (other than skills, knowledge, and understanding).	
	(Categories)	(Examples of Outcome Measures or Indicators)
2510	*Adventurousness and Initiative*—Willingness to take chances and risks; how daring an individual is; willingness to take a stand or speak out; willingness and capacity to initiate personal action or to become actively involved.	Reports by impartial observers of changes in initiative that seem to have resulted from college attendance. Self-report of the effect of college on one's willingness to take a chance, e.g., to take an educated guess on an exam. The frequency that one exhibits speaking out on issues as the college career progresses.
2520	*Autonomy and Independence*—The amount of freedom from control and influence of others that is exhibited.	Score or change in score on personality scales that measure autonomy and independence, e.g., Sixteen Personality Factors Questionnaire Group-Dependent vs. Self-Sufficient Scale, Edwards Personality Inventory Independent in His Opinions Scale, College Student Questionnaire Independence Scales, Omnibus Personality Inventory Autonomy Scale. Self-report of willingness to volunteer or "stand up for one's rights" and the effect of college attendance on such willingness.
2530	*Dependability and Responsibility*—The amount of reliability, trustworthiness, and accountability for own behavior that is exhibited.	Reports by observers of changes in dependability and responsibility that have occurred during college. Score or change in score on scales that measure dependability and responsibility, e.g., California Psychological Inventory Responsibility Scale, Edwards Personality Inventory Assumes Responsibility Scale, Sixteen Personality Factors Questionnaire Expedient vs. Conscientious Scale.
2540	*Dogmatism, Authoritarianism, and Open-Mindedness*—The amount of open-mindedness, assertiveness, unassertiveness, and/or unquestioning obedience to authority that is exhibited.	Reports of expert observers about changes in open-mindedness that have taken place during college. Score or change in score on a scale that measures dogmatism and/or authoritarianism, e.g., Rokeach Dogmatism Scale, California Psychological Inventory Dominance Scale, Omnibus Personality Inventory Religious Orientation Scale.
2550	*Flexibility and Adaptability*—The amount of adjustment to new and changing situations and circumstances that is exhibited.	Score or change in score on a scale that measures flexibility, e.g., California Psychological Inventory Flexibility Scale, Omnibus Personality Inventory Practical Outlook Scale, Sixteen Personality Factors Questionnaire Practical vs. Imaginative Scale. Reports by observers of changes in adaptability and flexibility that have occurred during college. Self-report of the effect of college on adaptability and flexibility.
2560	*Habits*—The tendency to perform certain actions or to behave in characteristic, automatic ways.	Observations by others of changes in habit orientation that have occurred during attendance. Self-report of changes in habits that have resulted from college.
2570	*Psychological Functioning*—The amount of psychological adjustment, contact with reality, self-understanding, and self-actualization (optimum self-realization) that is exhibited.	The amount of realization of one's actual strengths and weaknesses, and of what is reality. Score or changes in score on an instrument that measures psychological adjustment, e.g., Minnesota Multiphasic Personality Inventory, Sixteen Personality Factors Questionnaire, Moody Problem Check List. Reports by expert observers about changes in the psychological functioning of individuals that have occurred during college attendance.

Category Code Number	2000 HUMAN CHARACTERISTIC OUTCOMES (continued)	
2580	*Tolerance and Persistence*—The amount of endurance, tenacity, forbearance, patience, and restraint that is exhibited.	Observations by others of changes in tolerance and persistence during college. Score or changes in score on an instrument that measures tolerance and persistence, e.g., Edwards Personality Inventory Persistence Scale, California Psychological Inventory Tolerance Scale.
2590	*Other Personality and Personal Coping Outcomes*	
2600	*Physical and Physiological Characteristics*—Levels, patterns, and directions of human body traits and processes (other than skill functioning).	
	(Categories)	(Examples of Outcome Measures or Indicators)
2610	*Physical Fitness and Traits*—Physical and physiological characteristics such as toughness, endurance, strength, speed, flexibility or dexterity, physical energy, muscular control, size, vocal characteristics, etc.	Score or change in score on physical fitness tests, e.g., AAHPER Youth Fitness Tests, Basic Fitness Tests. Self-report of "feeling in better physical shape" as a result of college.
2620	*Physiological Health*—The physical well-being of individuals; how well the system of normal bodily operations is functioning.	Medical doctor's health physical examination report at college entrance compared to at college graduation. Self-report of the effect of college attendance on how well alumni take care of their bodies.
2630	*Other Physical or Physiological Outcomes*	
2700	*Status, Recognition, and Certification*—Levels, patterns, and direction concerning recognition of accomplishments, power, prestige, reputation, etc.	
	(Categories)	(Examples of Outcome Measures or Indicators)
2710	*Completion or Achievement Award*—A certificate, diploma, or some other award for having completed a course or program, for some demonstrated proficiency, or for accomplishment of some type.	An honorary degree. Graduation diploma. Alumni achievement award. Sales award or a job promotion. Danforth Fellowship Award. Being named a Rhodes Scholar.
2720	*Credit Recognition*—Formal or informal acknowledgement of work completed or of confidence, trust, approval, etc.	Graduate school grades. Credit hours given for completing a course. By-line credit for a movie, play, book, or article. Financial credit rating issued by a bank or credit bureau.
2730	*Image, Reputation, or Status*—The amount of fame, distinction, respect, and standing in the eyes or the profession, the community, or some other group.	Being on the social register. Being listed in *Who's Who*. Oral and written acknowledgements from others. Being interviewed by the press, radio, or TV. Writing an autobiography that is published or having a biography written about you.
2740	*Licensing and Certification*—Formal written authority that a person or firm is qualified and has met the test to practice some skill or speciality occupation.	Entry into the state bar. Passing a cosmetology licensing exam. Being a certified public accountant. An insurance company that has been licensed to sell in a state.

Category Code Number	2000 HUMAN CHARACTERISTIC OUTCOMES (continued)	
2750	*Obtaining a Job or Admission to a Follow-Up Program*—Success in being selected for a postgraduate employment position or a special educational program at a higher level.	*Entrance to a university after graduation from a community* college. Entrance to law, medical, or graduate school. Being selected by the civil service. Being selected for a company executive position. Being hired in the special field for which the training applied.
2760 2770	*Power and/or Authority*—The amount of acknowledged authorization or ability to influence, command, enforce obedience, or set policy as a right of rank, position, delegated jurisdiction, skill, strength, wealth, etc.	Appointment or election to a position of authority. Earning promotion to a position of authority. Influencing important community or public decisions. Getting acknowledged credit for the important job having gotten done.
	Job, School, or Life Success—Evidence of success in one's occupation or career, in graduate or professional school, or in some other aspect of one's life that is covered in any of the above categories.	Self report of success in career. Teacher's rating of success in graduate school. Employer's rating of overall on-the-job performance.
2780	*Other Status, Recognition, and Certification Outcomes*	
2800	*Social Activities and Roles*—Levels, patterns, and directions of social functions assumed and carried out.	
	(Categories)	(Examples of Outcome Measures or Indicators)
2810	*Adjustment to Retirement*—Altering self and lifestyle to meet the needs and adapt to the limitations of the retirement years.	Percentage of college educated retirees reporting productive retirement years compared to reports of those who never attended college. Self-report of the effect of having attended college on the retirement years.
2820	*Affiliations*—Finding appropriate organizations and institutions to join and associate with, and being accepted by them.	Number of affiliations and changes in affiliations for college graduates as compared to those never attending college. Self-report of the effect of having attended college on the affiliations sought and on the affiliations won.
2830	*Avocational and Social Activities and Roles*—Finding, pursuing, and achieving rewarding nonwork activities, hobbies, and parts to play in society, and exhibiting that pattern of behavior that is expected of persons having the status that has been earned.	The social roles and avocations of college graduates as compared to those who never attended college. Self-report of the effect of having attended college on the avocational and social roles sought, and on those practiced.
2840	*Career and Vocational Activities and Roles*—Exhibiting the patterns of behavior expected and/or that are needed for the part in the "world of work" that has been accepted or entered into.	The career roles of college graduates as compared to those who never attended college. Reports of employers concerning the advancement and roles of college trained employees versus the advancement and occupational roles of those who never attended college.
2850	*Citizenship Activities and Roles*—Facilitating and contributing to governmental functions and to the overall well-being of individuals, the community, and larger society.	Percent voting in a municipal or state election. Financial and other contributions given to service organizations. Percent running for public office or campaigning for someone who is.

Category Code Number	2000 HUMAN CHARACTERISTIC OUTCOMES (continued)	
2860	*Family Activities and Roles*—Contributing to and facilitating family functions, i.e., parent roles, sibling roles, son/daughter roles, etc.	*The family roles of college graduates as compared to those who* never attended college. Self-report of effect of the college on the roles played in one's family.
2870	*Friendships and Relationships*—Socially interacting with and entering into and sustaining intimate, in-depth, and satisfying associations with others.	Characteristics of friends and relationships of college educated people versus those never attending college. Self-report of the effect of college on friendships and social relationships.
2880	*Other Activity and Role Outcomes*	
2900	*Other Human Characteristic Outcomes*	

Category Code Number	3000 KNOWLEDGE, TECHNOLOGY, AND ART FORM OUTCOMES	
3100	*General Knowledge and Understanding** —Familiarity with, analysis and comprehension of, and application of facts and principles across broad areas of study—*breadth* of knowledge and understanding—as a result of dissemination through educational teaching-learning activities.	
	(Categories)	(Examples of Outcome Measures or Indicators)
3110	*Knowledge and Understanding of General Facts and Terminology*—Knowing about and understanding, and having an adequate vocabulary to be able to describe, the reality, existence, and circumstances of particular sensory (observed, heard, felt, etc.) phenomena, objects, people, products, events, conditions, etc., or components thereof.	Students' scores or changes in score on standardized or classroom tests that measure knowledge and understanding of general terminology and/or facts. For example, the Miller Analogies Test focuses entirely on knowledge and understanding of general terminology, and tests like the College Level Examination Program (CLEP) or the Graduate Record Exam (GRE) general exam include coverage of general terminology and facts. Students' self-report of knowledge and understanding about general terminology and facts.
3120	*Knowledge and Understanding of General Processes*—Knowing about and understanding customs, rules and standards for judgments, guidelines, processes, methods, procedures, techniques, trends, and other ways of applying and making use of terminology and facts.	Students' scores or changes in score on standardized or classroom tests measuring comprehension of general conventions, processes, and methodologies. Students' grades in a general application survey course.
3130	*Knowledge and Understanding of General Theory*—Knowing about and understanding principles and generalizations, theoretical formulations, hypotheses, supposition, conjecture, etc.	Students' scores or changes in score on standardized or classroom tests measuring comprehension of general theories in a broad field of study. Students' grades in a general survey course on theories of philosophy.
3140	*Other General Knowledge and Understanding.*	
3200	*Specialized Knowledge and Understanding** —Familiarity with, analysis and comprehension of, and application of facts and principles in particular specialized fields of study—depth of knowledge and understanding—as a result of dissemination through educational teaching/learning activities.	
	(Categories)	(Examples of Outcome Measures or Indicators)
3210	*Knowledge and Understanding of Specialized Facts and Terminology*—Knowing about and understanding, and having an adequate vocabulary to be able to describe the reality, existence, and circumstances of particular sensory (observed, heard, felt, etc.) phenomena, objects, people, products, events, conditions, etc., or components thereof.	Students' scores or changes in score on standardized or classroom tests that measure knowledge and understanding in a narrow, specialized area of study. Professional certification and licensing exams usually focus on this type of knowledge, as do tests like the College Level Examination Program (CLEP) subject exams or the Graduate Record Exam (GRE) area exams. Students' self-report of knowledge and understanding about specialized terminology and facts.
3220	*Knowledge and Understanding of Specialized Processes*—Knowing about and understanding customs, rules and standards for judgments, guidelines, processes, methods, procedures, techniques, trends, and other ways of applying and making use of terminology and facts.	Students' scores or changes in score on standardized or classroom tests measuring comprehension of conventions, processes, methodologies, and techniques unique to particular specialized professions or disciplines. Students' grades in a specialized professional course or program.
3230	*Knowledge and Understanding of Specialized Theory*—Knowing about and understanding principles and generalizations, theoretical formulations, hypotheses, supposition, conjecture, etc.	Students' scores or changes in score on standardized or classroom tests measuring comprehension of specialized theoretical formulations and models. Students' grades in a course that goes into depth about one or more theories or models unique to a specialized discipline or profession.
3240	*Other Specialized Knowledge and Understanding*	
3300	*Research and Scholarship*—Knowledge and understanding, techniques, and physical products resulting from basic and applied research and scholarship.	

*The subcategories used for this category came from Bloom (1956).

Category Code Number	3000 KNOWLEDGE, TECHNOLOGY, AND ART FORM OUTCOMES (continued)	
	(Categories)	(Examples of Outcome Measures or Indicators)
3310	*Research and Scholarship Knowledge and Understanding*—The discovery, development, preservation, and professional dissemination of knowledge and understanding resulting from activities conducted in basic and applied research and scholarship.	Average number of basic research publications, applied research publications, textbooks, or monographs, etc., per student, former student, and/or faculty member over a specific period of time. Number of faculty members and/or former students in the sciences listed in *American Men of Science*.
3320	*Research and Scholarship Products*—Applied techniques (for example, a new therapy treatment in the field of medicine or a new technique in the field of music) and physical products (for example, a new or refined serum) developed from basic and/or applied research and scholarship.	Average number of patents and/or copyrights received per student, former student, and/or faculty member over a given period of time. Average number of awards and citations received per student, former student, and/or faculty member (over a given period of time) for discovery or development of technological products.
3400	*Art Forms and Works*—Reproducing and preserving existing artistic forms and works, and developing new or revised artistic forms and works.	
	(Categories)	(Examples of Outcome Measures or Indicators)
3410	*Architecture*—Outcomes involving the design for construction of buildings, landscape, living complexes, etc.	Number of architectural works completed by students, former students, and/or faculty. Number of awards and other recognitions received for architectural works on the campus commissioned by campus officials.
3420	*Dance*—Outcomes involving preservation or development of forms, works, and performances in the art of dance.	Number of former students receiving recognition for performances in this area. Number of students involved in dance auditions and public performances.
3430	*Debate and Oratory*—Outcomes involving preservation or development of forms and performances in the oratory arts.	Competition record over a period of years of the college's debate team. The average number of graduates each year who go on to some kind of oratorical career.
3440	*Drama*—Outcomes involving the preservation or development of forms, works, and performances in the professional and amateur theatrical arts.	The number of students who enter a professional acting career, and the number acting on an amateur basis. The number of drama performances put on for the local community each year.
3450	*Literature and Writing*—Outcomes involving the preservation or development of forms and works in the production of prose, verse, and other writings.	The average number of literary works each year published by students, former students, and/or faculty members. The number of students and faculty each year who have entered a formal state or national writing competition.
3460	*Music*—Outcomes involving the preservation or development of forms, works, and performances in the professional and amateur theatrical arts.	The number of musical productions put on each year by the college that are open to the public. The number of students involved in public music recitals and other performances.
3470	*Painting, Drawing, and Photography*—Outcomes involving the preservation or development of forms or works in the graphic and pictorial arts.	The number of paintings, and their quality in the campus art gallery. The number of awards won over a certain period of time for pictorial works by students, former students, and faculty members.
3480	*Sculpture*—Outcomes involving the preservation or development of forms or works in the carving, chiseling, casting, modeling, or other sculpturing areas.	The number of sculptures that have been commissioned by the college and placed throughout the campus. The forms of sculpture that have been developed on the campus.
3490	*Other Fine Arts*	
3500	*Other Knowledge, Technology, and Art Form Outcomes*	

Category Code Number	4000 RESOURCE AND SERVICE PROVISION OUTCOMES	
4100	*Provision of Facilities and Events*—The availability, use, and participation in campus happenings, buildings, equipment, and other resources by students, other individuals, and particular groups or communities.	
	(Categories)	(Examples of Outcome Measures or Indicators)
4110	*Provision of Facilities*—Availability and use of campus grounds, buildings, rooms, equipment, etc.	Number of facilities made available to the students during a particular period of time. Total number of hours each facility was used by people in the community, and the number of people-hours of use over a specific period of time.
4120	*Provision or Sponsorship of Events*—Availability and participation in happenings on the campus or off that are provided or stimulated by the college or one of its components.	The number of people who attended athletic events, cultural events, or other events provided and/or sponsored by the college in any one year. The number of column inches of newspaper coverage received by specific events in local, regional, and national newspapers.
4200	*Provision of Direct Services*—The availability, use, and receipt by students, other individuals, and particular groups or communities of assistance, care, or other service.	
	(Categories)	(Examples of Outcome Measures or Indicators)
4210	*Teaching**—Activities and programs designed to instruct and to impart knowledge, skills, attitudes, etc.	Average number of courses taught and number of contact hours per semester in the regular program. Extension courses provided in any one calendar year.
4220	*Advisory and Analytic Assistance*—Activities and programs designed for the purpose of (upon request) offering suggestions, recommendations, counsel, information, calculations, and studies.	Number of advisory and analytic assistance services offered to students, staff, and/or to the public. Number of person-hours spent by staff in providing this assistance over a specific period of time.
4230	*Treatment, Care, and Referral Services*—Helping and direct assistance services, other than those above, provided by the institution, institutional units, and/or institutional staff.	The treatment, care, and referral services offered by the institution and its staff, and health services, day care for children of working mothers, counseling, crisis referral, and drug treatment and the amount these services are used. The reported satisfaction of users of these services with the treatment and care received.
4240	*Provision of Other Services*—An example would be direct civic leadership provided to the community. Another example would be offering keypunching service.	
4300	*Other Resource and Service Provision Outcomes*—An example would be the attention and good will the college draws to the local community because it is located there.	

*Some people would consider teaching to always be a producer/facilitator activity that leads to outcomes. Others would, however, consider teaching to be an output that results from the interaction of faculty, equipment, students, and other educational resources. Those who hold the first viewpoint should just ignore this category.

Category Code Number	5000 OTHER MAINTENANCE AND CHANGE OUTCOMES
5100	*Aesthetic-Cultural Conditions*—Preserving or bringing about changes in tastes, level and kinds of aesthetic-cultural emphasis, aesthetic-cultural availability and opportunities, aesthetic-cultural activity and participation, etc.
5200	*Organizational Format, Activity, and Operations*—For organizations, groups, and systems (and their components), maintenance or change in organizational communications, operational methods and interaction, operational effectiveness, organizational relationships, organizational arrangement and configuration, organizational activities and programs, and other such organizational characteristic outcomes.
5300	*Other Maintenance and Change*—Outcomes not covered by any of the other subcategories of "Maintenance" and "Change" in this dimension of the Outcomes Structure. An example might be "destruction of life support in the environment."

Appendix C

An Example of Outcomes Classified with the *Structure* Using Outcome Statements from the NCHEMS *Outcomes Inventory*

OUTCOME CATEGORY OF THE NCHEMS INVENTORY	CORRESPONDING CATEGORY OR CATEGORIES OF THE OUTCOMES STRUCTURE TYPE-OF-OUTCOME DIMENSION*
1.1.1.00 Knowledge Development	3002 Knowledge, Technology, and Art Form Change Outcomes
1.1.1.01 General Knowledge	3102 Change in General Knowledge and Understanding
1.1.1.02 Specialized Knowledge	3202 Change in Specialized Knowledge and Understanding
1.1.2.00 Skills Development	2202 Change in Competence and Skills
1.1.2.01 Application of Knowledge Skills	2252 Change in Intellectual Skills
1.1.2.02 Critical Thinking and Reasoning Skills	2252 Change in Intellectual Skills
1.1.2.03 Creativity Skills	2232 Change in Creativity Skills
1.1.2.04 Communication Skills	2242 Change in Expression and Communication Skills
1.1.2.05 Motor Skills	2282 Change in Physical and Motor Skills
1.1.3.00 Knowledge and Skills Attitudes, Values, and Beliefs	2312 Change in Attitudes and Values
	2322 Change in Beliefs, Commitments, and Philosophy of Life
1.1.3.01 Intellectual Disposition	2122 Change in Desires, Aims, or Goals
1.2.1.00 Social Skills Development	2262 Change in Interpersonal, Leadership, and Organizational Skills
1.2.1.01 Interpersonal Participation	2262 Change in Interpersonal, Leadership, and Organizational Skills
1.2.1.02 Leadership	2262 Change in Interpersonal, Leadership, and Organizational Skills
1.2.1.03 Citizenship	2222 Change in Citizenship and Family Membership Skills
1.2.2.00 Development of Social Attitudes, Values, and Beliefs	2312 Change in Attitudes and Values
	2322 Change in Beliefs, Commitments, and Philosophy of Life
1.2.2.01 Political	2312 Change in Attitudes and Values
1.2.2.02 Racial/Ethnic	2312 Change in Attitudes and Values
	2432 Change in Perception of Others
1.2.2.03 Personal Ethics	2312 Change in Attitudes and Values
1.2.2.04 Social Conscience	2312 Change in Attitudes and Values
	2322 Change in Beliefs, Commitments, and Philosophy of Life
1.2.2.05 Socioeconomic Aspirations	2102 Change in Aspirations
1.3.1.00 Student Health Development	2622 Change in Physiological Health
	2572 Change in Psychological Functioning
1.3.1.01 Physical Health	2622 Change in Physiological Health
1.3.1.02 Mental Health	2572 Change in Psychological Functioning
1.3.2.00 Student Personal Attitudes, Values, and Beliefs	2312 Change in Attitudes and Values
	2322 Change in Beliefs, Commitments, and Philosophy of Life
1.3.2.01 Religious and Spiritual	2322 Change in Beliefs, Commitments, and Philosophy of Life
1.3.2.02 Change/Stability	2312 Change in Attitudes and Values
	2442 Change in Perception of Things
1.3.2.03 Self-Concept	2422 Change in Perception of Self
1.4.1.00 Career Preparation	2272 Change in Occupational and Employability Skills
	3102 Change in General Knowledge and Understanding
	3202 Change in Specialized Knowledge and Understanding
1.4.1.01 Academic Preparation	2212 Change in Academic Skills
1.4.1.02 Vocational Preparation	2272 Change in Occupational and Employability Skills
	3102 Change in General Knowledge and Understanding
	3202 Change in Specialized Knowledge and Understanding
1.4.2.00 Career Attitudes, Values, and Beliefs	2312 Change in Attitudes and Values
	2322 Change in Beliefs, Commitments, and Philosophy of Life
1.4.2.01 Achievement Orientation	2132 Change in Motivation or Drive Level
1.4.2.02 Educational Aspiration	2102 Change in Aspirations
1.4.2.03 Educational Satisfaction	2332 Change in Feelings and Emotions
1.4.2.04 Vocational Aspirations	2102 Change in Aspirations
2.0.0.01 Discovery of New Knowledge	3312 Change in Research and Scholarship Knowledge and Understanding
2.0.0.02 Interpretation and Application of New Knowledge	3312 Change in Research and Scholarship Knowledge and Understanding
2.0.0.03 Reorganization of New Knowledge	3312 Change in Research and Scholarship Knowledge and Understanding
(Continued)	(Continued)

*More than one Outcomes Structure category may pertain to a single NCHEMS Outcomes Inventory category in order to best conform to that category.

OUTCOME CATEGORY OF THE NCHEMS INVENTORY (Continued)	CORRESPONDING CATEGORY OR CATEGORIES OF THE OUTCOMES STRUCTURE TYPE-OF-OUTCOME DIMENSION (Continued)
3.1.0.00 Community Development**	2002 Change in Human Characteristics
3.1.0.01 Community Educational Development	2002 Change in Human Characteristics
3.1.0.02 Faculty/Staff Educational Development	2002 Change in Human Characteristics
3.2.0.00 Community Service**	4002 Resource and Service Provision Outcomes
3.2.0.01 Extension Services	4202 Provision of Direct Services
3.2.0.02 Personal Services	4202 Provision of Direct Services
3.2.0.03 Extramural Cultural and Recreational Services	4102 Provision of Facilities and Events
	4202 Provision of Direct Services
3.2.0.04 Financial Impact on the Community	1000 Economic Outcomes
3.3.0.00 Longer Term Community Effects**	0002 Change Outcomes
3.3.0.01 Social Impact	2002 Human Characteristics Outcomes
3.3.0.02 Economic Impact	1000 Economic Outcomes

**The "audience" dimension would account for "community" and the "time" dimension of the Outcomes Structure would account for "longer term."

Appendix D

Possible Copy for a Brochure or Flier Introducing Outcomes Concepts and the Outcomes Structure

Introducing the NCHEMS Outcome Structure

A Flexible, Practical Tool to Help Faculty and Administrators in Their Planning, Decision Making, and Communication about Educational Outcomes

1. *What Is an Educational Outcome in Postsecondary Education?*
   Postsecondary education outcomes are the end results of the processes that occur within postsecondary education institutions and programs, such as instructional activities, research and scholarship activities, and community service programs. They include both the direct results of these processes and any short-term and long-term consequences of those direct results. Some involve maintenance of skills, standard of living, and other individual and social conditions, while others involve primarily change of different types. Furthermore, some of them may be intended outcomes while others are unintended. Although outcomes are generically neutral, people attach positive and/or negative values to them, and see them as performing or not performing particular useful functions for individuals, a particular community, particular aggregates of people (for example, "handicapped people"), or other entities such as the environment. One can focus on outcomes for students, for the local community, or for some other group.

2. *What Is the NCHEMS Outcomes Structure?*
   The NCHEMS Outcomes Structure is a flexible, integrated, and comprehensive framework and system for organizing outcomes and outcomes information for purposes of classification, analysis, and decision making. It was developed by the NCHEMS staff over more than two years of concentrated effort, and rests upon many significant bodies of previous work. Preliminary trial use and review of this Structure suggests that it is applicable to the full range of educational outcomes and has a number of quite practical uses for faculty and administrators on college and university campuses.

3. *Why Was the Outcomes Structure Developed?*
   Without agreement on a common language and context for outcomes, it is difficult for institutional faculty and staff to communicate succinctly—with each other across disciplinary lines and with important publics—what their institution and/or program is accomplishing and how it differs from its counterparts. Such communication is especially important in this "age of accountability." Prior to now, many people in our institutions have found it uncomfortable to think and make plans in terms of outcomes, let alone talk concretely in such terms, preferring instead to focus exclusively on activities, process, and "process quality." Furthermore, the potential volume of outcomes information in postsecondary education is quite formidable, which poses a significant barrier to using outcome information in institutional and program planning and management. Although a number of attempts have been made in the past to develop such a system, none of them included the full range of possible outcomes (which limited their applicability), they were often inflexible, and in other ways they proved inadequate to meet some practical needs.

4. *What Practical Uses Does the Outcomes Structure Have?*
   A. *Communication*—The terms and definitions in the Structure can serve as a workable common language where the outcome concepts and relationships remain constant from one use of the outcomes information to another, and it can thus facilitate effective communication about outcomes.
   B. *Stimulation*—The Structure can help create an awareness of postsecondary education outcomes and of the need for focusing on them, plus it can serve as a device that will stimulate people to focus on outcomes in a more systematic and concrete manner and to discuss them.
   C. *Planning, Management, and Evaluation*—The Structure can serve as a tool to assist directly in the following functions: needs assessment, goal identification, goal assessment, goal translation, resource

allocation, program planning, evaluation, and outcomes information storage and retrieval.

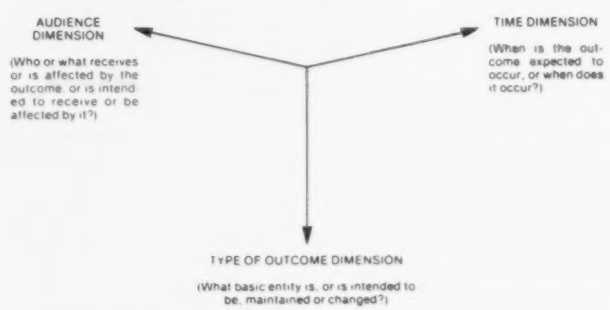
D. *Research*—The Structure can suggest gaps that need to be researched, research data bank applications, hypotheses for study, and so forth.

The Outcomes Structure was designed to be of use, in the ways described above, *at the institutional and program level.* However, a number of faculty who reviewed the Structure and tried it out in a preliminary manner expressed the opinion that it also could be helpful to instructors in planning individual courses. Several students and a student personnel worker felt it could be useful in helping students plan what they want to get out of college.

5. *What Is the Makeup of the Outcomes Structure?*

The Outcomes Structure is a systematic and comprehensive way to categorize the outcomes of postsecondary education in terms of three "dimensions" and to relate outcomes to one another in a logical pattern, or to "structure" them.

The three dimensions are "audience," "type-of-outcome," and "time," and they are illustrated graphically below:


AUDIENCE DIMENSION
(Who or what receives or is affected by the outcome, or is intended to receive or be affected by it?)
TIME DIMENSION
(When is the outcome expected to occur, or when does it occur?)
TYPE OF OUTCOME DIMENSION
(What basic entity is, or is intended to be, maintained or changed?)

The "audience" dimension is divided into the following five broad categories (which are in turn further divided into appropriate subcategories):

1. Individual/Group Clients
2. Interest-Based Communities
3. Geographic-Based Communities
4. Aggregates of People
5. Other Audiences

The "type-of-outcome" dimension is also divided into five broad categories, each of which has additional subdivisions:

1. Economic Outcomes
2. Human Characteristic Outcomes
3. Knowledge, Technology, and Art Form Outcomes.
4. Resource and Service Provision Outcomes
5. Other Maintenance and Change Outcomes

The categories and subcategories needed for the "time" dimension vary according to the audience and type-of-outcome of concern. Therefore, formal categories and subcategories are not included in the structure for this dimension.

Standard definitions are provided for each category and subcategory of each dimension, and straightforward procedures are provided for "extending the Structure" in the cases where still more specificity and detail are needed. A coding system is also provided, for those needing it.

6. *Where Can I Find More Information?*

The following two documents about the Structure are available (from NCHEMS Publications, P.O. Drawer P, Boulder, Colorado 80302):

A. *A Structure for the Outcomes of Postsecondary Education*—Presents six attributes of an educational outcome and five other factors that are important for understanding particular outcomes, and provides detailed background discussion about each. Gives an *in-depth* description of the Structure, its rationale, the developmental principles and evaluative criteria used, its development, and its underlying empirical support.

B. *The Outcomes Structure: An Overview and Procedures for Applying It in Postsecondary Education Institutions*—Provides an overview description of the Structure, gives descriptions and examples of the various ways that the Structure can be used in a practical manner at postsecondary institutions; provides step-by-step procedures for three basic processes using the Structure, which can in turn be applied to a number of other tasks; and provides guidelines for orienting people on a campus to outcomes concepts and the Structure, and for training people to apply them.

For those who are interested, another document is also available that provides a compilation of information about each of over 80 previous efforts to "structure" educational outcomes and related concepts that were found in the literature: *Previous Attempts to "Structure" Educational Outcomes and Outcome Related Concepts.* If additional information or assistance is needed concerning the Structure, contact NCHEMS.

Appendix E

Important Questions and Criticisms of the Outcomes Structure Posed by Particular Reviewers and Responses by the Developers of the Structure[a]

1. *By breaking outcomes into component types and ever more detailed categories, is it not possible to focus so much on specifics that one loses sight of the overall, combined whole which is more than the sum of the parts?* This is a real danger, but it does *not* mean it is improper or lacks value to focus on the components that constitute the whole. Rather, it cautions us to constantly, as we examine a part, keep in mind the relationship of the part to the other parts and the whole. It is difficult, if not impossible, to adequately describe the whole without focusing also on each important component, for example, describing or analyzing what it means to be an "educated person."

2. *Could not this attempt to objectify outcomes and develop standard categories and definitions lead to a stifling of diversity, innovation, and change—especially if the Structure is used by administrators to spell out the outcomes desired and the process to meet those outcomes in such specific, precise terms that there is little room for innovativeness on the part of faculty members?* Institutions and programs can be unique in the clientele served, the outcomes that are attempted or attained, and the means used to reach those outcomes. Preliminary use of the Structure shows that the audience dimension provides a comprehensive universe of categories of potential clients from which to choose, and that the type-of-outcome dimension provides a comprehensive universe of outcomes categories from which to choose. Thus, using the lists of categories as a checklist could stimulate consideration of specific unique audiences and types of outcomes that might not have been considered otherwise.

   Although administrators could use the Structure to stifle innovation, they also could stimulate faculty to be more specific and concrete in delineating the outcomes intended, and thus encourage consideration of alternative ways of bringing about the outcomes based on the desired end results. The Outcomes Structure can clearly be used to help stimulate such concreteness in thinking, as demonstrated by the joint CASC/NCHEMS project.

3. *Would not the process of using the Structure take more of my time and energy than I can afford?* To use the Structure as an aid to development of a *complete* program of goals, objectives, and priorities for a complex institution and its programs is an extremely lengthy process. But that process would be lengthy whether or not the Structure was used. It is possible that the systematic approaches developed for using the Structure, the definitions and concepts outlined, and use of the Structure as a checklist of the universe of alternative possible focuses can shorten the process appreciably. Furthermore, certain applications of the Structure do not have to be time consuming to be useful—for example, stimulating systematic and more concrete thinking by faculty and staff of what they are trying to accomplish in their programs and courses, of why they are trying to accomplish those ends in particular ways, and of how to show others that they are accomplishing their goals. Similarly, experiences at the University of Colorado suggest that one who is properly oriented to outcome concepts can use the Structure to evaluate the coverage of extensive lists of goals relatively quickly and efficiently.

4. *Does not the use of psychological jargon for some terms in the Structure diminish its usefulness as an aid to communication?* Jargon of any type should be avoided whenever possible, and an attempt was made to avoid its use in developing the Structure. But for certain outcomes, particularly student outcomes, psychological terminology appeared to be the most generic and descriptive, and the

[a] Reprinted from Chapter 4 of Oscar T. Lenning, Yong S. Lee, Sidney S. Micek, and Allan L. Service, *A Structure for the Outcomes of Postsecondary Education*. (Boulder, Colorado: National Center for Higher Education Management Systems, 1977).

most widely accepted. Council for the Advancement of Small College visitors to the campuses did perceive that the Structure could aid in "communicating outcomes across disciplinary lines." Nevertheless, it is to be hoped that extensive use of the Structure will suggest better terms in some areas of the Structure.

5. *Does not the fact that the code numbers are disconcerting to some people reduce the Structure's usefulness for them?* Possibly, but it need not be so. Code numbers for each category were included for two purposes: (1) to give people a shorthand that would allow them to record outcomes and communicate them to knowledgeable others verbally or in writing in a more succinct and efficient manner, and (2) for use in outcomes information storage and retrieval systems. For other uses, the codes could be ignored. This is what happened in follow-up applications of the Structure at Spring Arbor College. Interestingly, in the CASC/NCHEMS interviews, when the respondents referred to particular outcome categories, they generally referred to the code numbers rather than the category name—for example, "Outcome 2240" rather than "expression and communication skill outcomes." Thus, some people who initially find the codes disconcerting may later become accustomed to using them and actually find them useful. But users of the Structure are encouraged to modify it as appropriate for best meeting their context and needs.

6. *The orientation of the Structure is foreign to the orientation of most educators—they just don't think this way. Would it not have been better and more acceptable to them if it were closer to their orientation in its form and content?* The authors tried to make the Structure as generic, theoretically and philosophically neutral, and comprehensive in its coverage as possible, and this guided the development of the Structure. One person who raised this question suggested moving the knowledge and understanding categories in front of the human characteristic outcome categories, because "they are more important to most educators." But such a change would have made the Structure less neutral than retaining the categories in alphabetical order. The NCHEMS Inventory of Outcome Variables and Measures, which is the forerunner of the Outcomes Structure, was closer in its orientation to that of the typical educator who will use the Structure. However, that very characteristic led to criticism by some that many of the terms used were value-laden (it was not philosophically and theoretically neutral), that it was too selective in its coverage (not comprehensive), and that it was too specific in its orientation and lacked some internal consistency (not generic).

Appendix F

Some Materials for Possible Use at the Campus Orientation Workshops

		Page
1.	A Possible Workshop Agenda	62-63
2.	Sample Transparencies That Could Be Used in Presenting an Overview of Outcome Concepts and the Structure	64-73
3.	A Relevant Instrument for a Work Exercise	74-77
4.	A Relevant Role-Playing Scenario	78

Possible Workshop Agenda*

1. A short *introduction* that outlines why the campus may have a need to apply outcome concepts and the Outcomes Structure.

2. An *overview of outcomes concepts and the NCHEMS Outcomes Structure,* using transparencies such as those included in this appendix. Using color, for example, different color shades of plastic for different transparencies, can add to their attractiveness and attention-getting quality. Be sure to encourage questions and requests for clarification during the presentation.

3. A short overview *summary of how the Structure could be used to develop lists of priority outcomes for one's program,* using a handout in which are reprinted Figures 1-5 of this document, which show what came out of various stages in the outcome list development process for the political science program at Alpha College.

4. Conduct a *relevant work experience that will stimulate participants to focus on the intended or needed program goals they perceive, ways of reaching those goals, and how outcome success might be documented for their program of concern or responsibility.* Have participants respond quickly to the Student Learning Outcomes Questionnaire included in this appendix—or a modified version of it—in terms of the program for which they are primarily concerned or responsible, and then have them discuss their responses with one another in previously assigned small groups. The enclosed questionnaire is a revised version of the form used in the CASC/NCHEMS campus interviews to stimulate discussion. As with the other workshop materials, it is imperative that the stimulation questionnaire decided on be tried out in advance and modified accordingly before being used at the workshop. For example, you may find that it should be abbreviated (any of items 6-50 could be deleted easily) to fit into the time slot allotted for it in the workshop.

5. *Review of the work exercise,* where it is to be shown how the use of the questionnaire and the follow-up conversation was in fact an abbreviated application of the outcomes Structure, discussed previously, to one part of program planning.

6. Conduct a *role-playing exercise,* making use of the scenario included in this appendix, *which has the intent of shifting the group's attention to institution-wide outcomes, and outcome-oriented planning at that level.* People to play the roles should be selected very carefully and invitations to play the roles should be made (preferably in person, and they should receive copies of the scenario at this time) well in advance of the workshop. Furthermore, an orientation session with the role players, that includes distribution of appropriate materials about the Structure and its use, should be held ahead of time so that they can be prepared adequately to assume their roles.

   For the workshop session itself, it would be desirable to have them seated around a round table with large identification place cards that everyone else at the table can easily read. In the CASC/NCHEMS tryouts of this role-playing scenario, the actors had difficulty responding in terms of their own institution (which each was asked to do) because the discussion kept referring to "Alpha College." Therefore, the scenario sheet distributed probably should refer to your own institution by name (instead of Alpha College), and the discussion during the session then would also refer to your institution by name. It will probably be desirable to keep the fictitious names (or others deemed more appropriate and entertaining for your group) for the role participants, however, to keep it obvious to the group at all times that this is a role-playing situation designed to be nonthreatening to everyone. (For this reason also, a requirement was made for the CASC/NCHEMS workshops that none of the role players be playing their real-life role.)

7. *Discussion and critique of the role exercise,* including: how it related to reality; problems and issues related to institution-wide outcomes; and desirable modes, procedures, and

*The portion of each agenda item above that is typed in italics is what could be printed in the formal agenda sheet to be handed out to workshop participants, along with the time frames for each.

times for institution-wide goal setting for this institution. One person should have been assigned ahead of time to take notes during the role playing, to make observations about it to get the discussion started, and to lead the discussion.

8. *Wrap-up session* where the workshop leader summarizes what happened, ties together the different parts of the workshop into a meaningful whole, and attempts to end on a note that will stimulate further thinking and encourage support, action, and involvement for campus follow-up efforts in this area (this workshop is only meant to be a brief introduction to the whole subject).

The Six W's

In order to really understand educational outcomes the following must be answered:

- *What* are the characteristics and makeup of the educational outcome of concern?
- *Which* institutional resources and activities are combined, and in *which* ways, to bring about the outcome?
- For *Whom* is the outcome intended, or who actually received or was affected by it?
- *Why* will, or did, the outcome occur?
- *Where* will, or did, the outcome occur?
- *When* will, or did, the outcome occur?

Eleven Factors That Are Useful in Answering the Six Questions

What Outcomes?

1. Form — Products, Events, and Conditions
2. Change Status — Maintenance and Change
3. Focus
4. Neutrality
5. Measurability
6. Output/Impact

Which Way to Obtain Them?

7. Producer/Facilitator

Outcomes For Whom?

8. Audience

Why Will, or Did, They Occur?

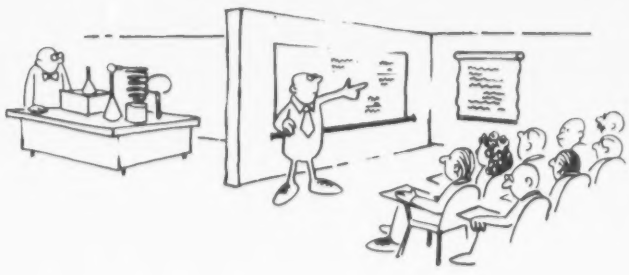
9. Intended/Unintended

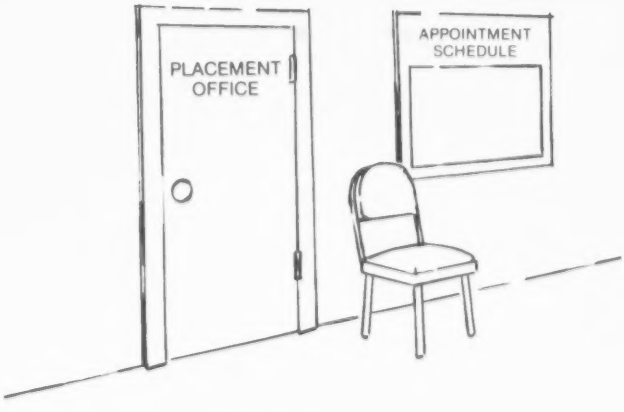
Where Will, or Did, They Occur?

10. Functional Area

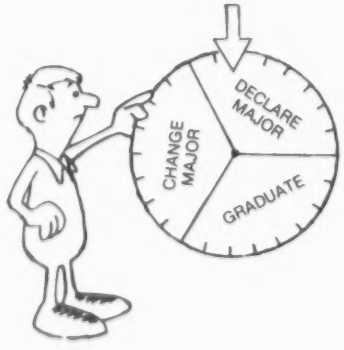
When Will, or Did, They Occur?

11. Time — Point in Time and Duration





WHICH OF THESE DRAWINGS SUGGEST PRIMARILY STUDENT *IMPACTS* AND WHICH SUGGEST PRIMARILY STUDENT *OUTPUTS* FOR A COLLEGE?

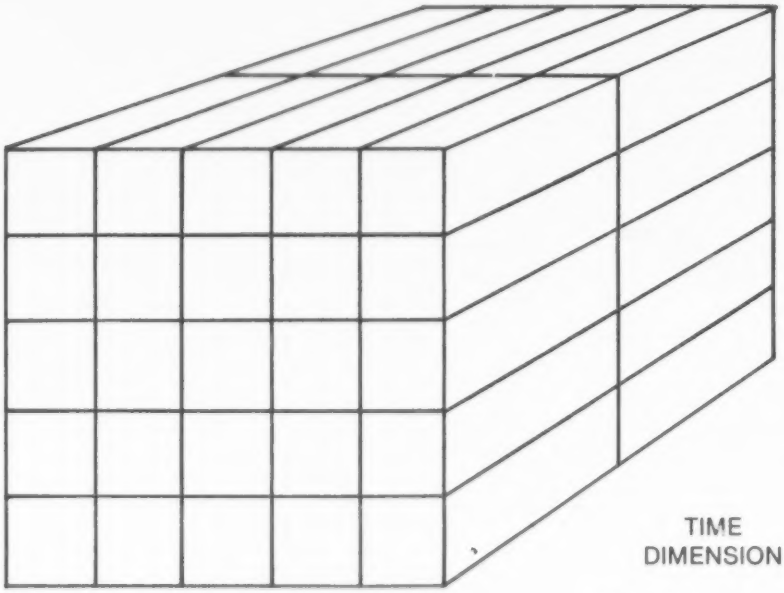


The NCHEMS Outcomes Structure is a system and framework designed to help people effectively organize and use information about the full range of postsecondary education outcomes.

Outcomes Structure

AUDIENCE
DIMENSION

(*Who* receives or
is affected by
the outcome?)



TIME
DIMENSION

(*When* is the outcome
expected to occur, or
when does it occur?)

TYPE-OF-OUTCOME
DIMENSION

(*What* basic entity is
maintained or changed?)

The Major (First Level of Detail) Categories for the Audience and Type-of-Outcome Dimension*

A. AUDIENCE DIMENSION
   1. Individual/Group Clients
   2. Interest-Based Communities
   3. Geographic-Based Communities
   4. Aggregates of People
   5. Other Audiences

B. TYPE-OF-OUTCOME DIMENSION
   1. Economic Outcomes
   2. Human Characteristic Outcomes
   3. Knowledge, Technology, and Art Form Outcomes
   4. Resource and Service Provision Outcomes
   5. Other Maintenance and Change Outcomes

*Each of these categories has subcategories that allow you to focus at a more detailed and concrete level.

The Audience/Type-of-Outcome Matrix

AUDIENCE

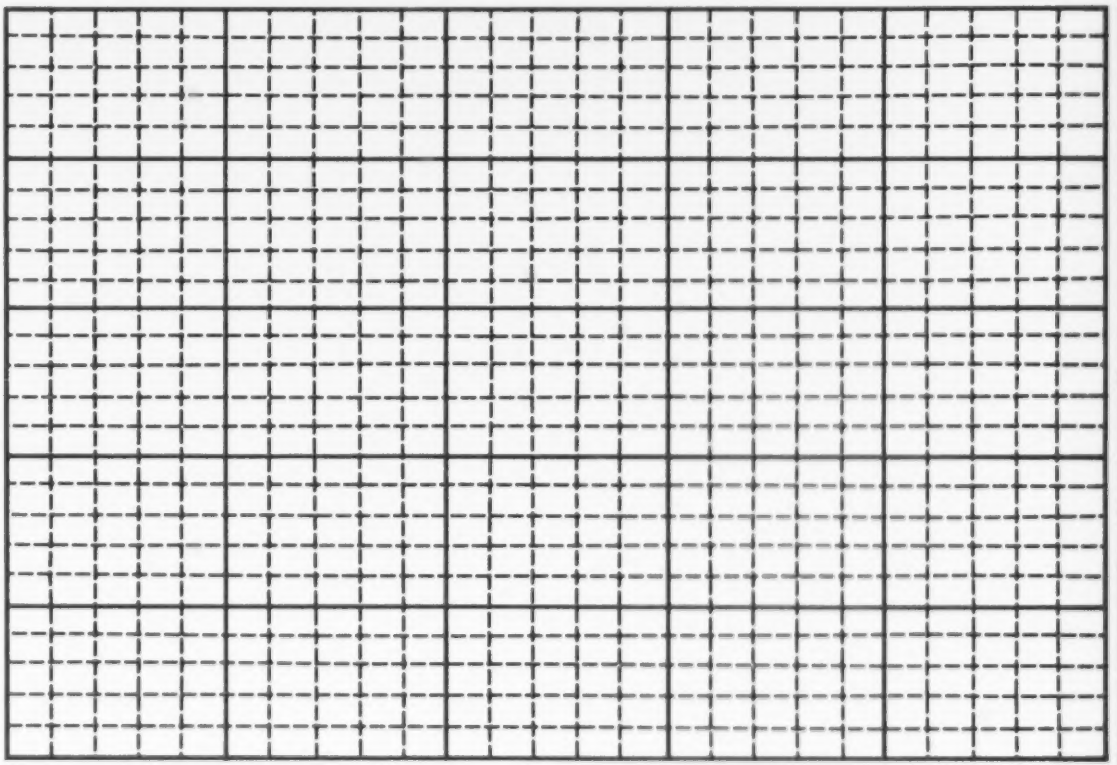
Individual/Group Clients

Interest-based Communities

Geographic-based Communities

Human-Characteristic Aggregations

Other Audiences



Economic Outcomes

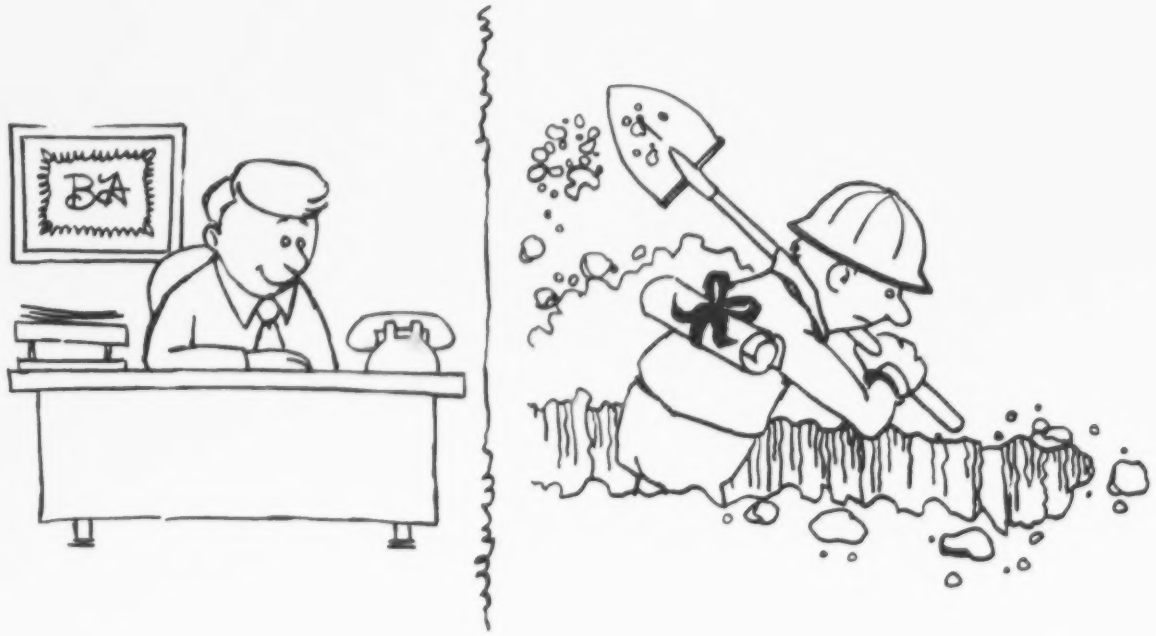
Human Characteristic Outcomes

Knowledge, Technology, and Art Form Outcomes

Resource and Service Provision Outcomes

Other Maintenance and Change Outcomes

TYPE-OF-OUTCOME



AUDIENCE { B.S. Graduates in Mechanical Engineering . . .

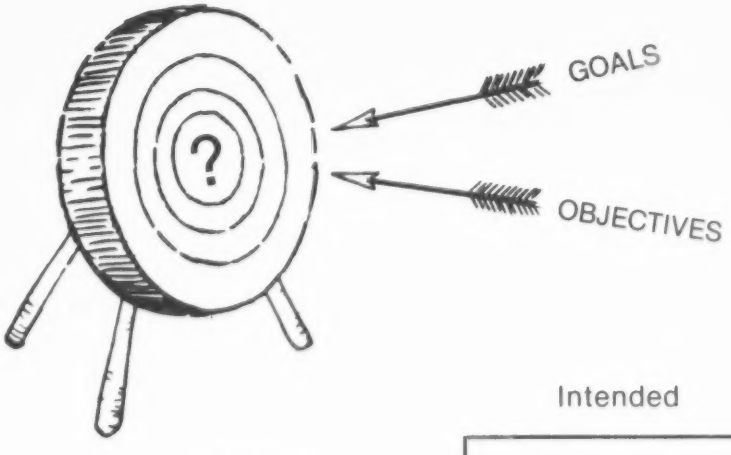
TYPE-OF-OUTCOME { Percentage of Graduates Obtaining Their First Full-Time Job in the Field of Their Choice . . .

TIME { Within One Year after Graduation

Uses of the Outcomes Structure

A. COMMUNICATION
B. STIMULATION
C. PLANNING, MANAGEMENT, AND EVALUATION

1. Needs Assessment
2. Goal Identification
3. Goal Assessment
4. Goal Translation
5. Planning and Management
6. Evaluation



	Intended	Actual
Context/ Condition		
Resources		
Activities		
Outcomes		

D. RESEARCH

77

In using the structure, it must be clearly differentiated whether the focus is on institution-wide outcomes or on program outcomes. It is unwise to try to focus on both types of outcomes at the same time when using the structure.

STUDENT LEARNING OUTCOMES QUESTIONNAIRE

SMALL COLLEGE FORM

Small colleges desire to have various impacts on their students. These consequences (outcomes) of college attendance that are planned to happen may or may not be expected to vary with the type of student. This questionnaire will gather information about the particular student outcomes that small-college administrators and faculty members are trying to bring about for: (1) the students throughout the college, or (2) the students in the college program area for which they have primary responsibilities. Any students completing the questionnaire should respond in terms of what they as students feel are the desirable outcomes for their college or their program at the college, and that should be aimed at by the college or program. For all respondents (administrators, faculty, or students), please decide whether you are going to respond in terms of college-wide outcomes or in terms of outcomes for a particular program area. Indicate your decision in Item 1 below, and then respond to the remainder of the questionnaire accordingly, by checking (✓) the appropriate boxes and completing the blanks.

1. Please respond to this questionnaire in one of two ways; in terms of outcomes for the college as a whole, or in terms of outcomes for your program within the college. Choose the area most important to you:

   ☐ 1 College-wide outcomes ☐ 2 Program-area outcomes (1)

2. If you answered "program-area outcomes" for Item 1, what program will you be referring to throughout the questionnaire?

   _____ (2-4)

3. What is your classification? Check (✓) one box and fill in the blank at the right. This information is needed so that we can describe the diversity of our survey samples. Such identification will be presented to others only in the form of group statistics.

Administrator	☐ 1	(What position? _____)	(6-8)
Department Head	☐ 1	(What department? _____)	
Other Faculty	☐ 1	(What department? _____)	
Student	☐ 1	(What major? _____)	

4. When considering student outcomes, either for your institution or for your program, would you rather distinguish between outcomes for student subpopulations, or can you focus meaningfully on desired outcomes for "all students in general"? That is, are outcomes significantly different for: resident vs. commuter; majors vs. non-majors; upper- vs. lower-division, etc.? ☐ Yes ☐ No

5. If "yes," please indicate the two groups whose respective outcomes would be most important to plan for separately, in the spaces below:

   Group 1 -- _____ Group 2 -- _____ (9-10

Items 6-55 list some possible student outcome categories. To the right of the page are two columns of marking boxes that will allow you to rate the importance of each outcome for the group or groups of students you indicated in Item 4. If you answered "yes" for Item 4, only the Group 1 column should be used. Please choose from the following three categories in making your ratings, and code as indicated.

ESSENTIAL (Student outcomes that must be a direct focus of planning for this institution or program) ..... E

IMPORTANT (Student outcomes that should be a direct focus of planning for this institution or program) I

NOT NEEDED (May be nice, but is less than important as a focus of planning for this institution or program) ..... N

Essential	E
Important	I
Not Needed	N

		Group 1			Group 2			
		E	I	N	E	I	N	
6.	Academic skills	☐	☐	☐	☐	☐	☐	(11)
7.	Citizenship and family membership skills	☐	☐	☐	☐	☐	☐	(12)
8.	Creativity skills	☐	☐	☐	☐	☐	☐	(13)
9.	Expression and communication skills	☐	☐	☐	☐	☐	☐	(14)
10.	Intellectual skills	☐	☐	☐	☐	☐	☐	(15)
		E	I	N	E	I	N	
11.	Interpersonal, leadership, and organizational skills	☐	☐	☐	☐	☐	☐	(16)
12.	Occupational and employability skills	☐	☐	☐	☐	☐	☐	(17)
13.	Physical and motor skills	☐	☐	☐	☐	☐	☐	(18)
14.	General knowledge and understanding	☐	☐	☐	☐	☐	☐	(19)
15.	Specialized knowledge and understanding	☐	☐	☐	☐	☐	☐	(20)
		E	I	N	E	I	N	
16.	Desires, aims, and goals	☐	☐	☐	☐	☐	☐	(21)
17.	Dislikes, likes, and interests	☐	☐	☐	☐	☐	☐	(22)
18.	Motivation or drive level	☐	☐	☐	☐	☐	☐	(23)
19.	Attitudes and values	☐	☐	☐	☐	☐	☐	(24)
20.	Beliefs, commitments, and philosophy of life	☐	☐	☐	☐	☐	☐	(25)
		E	I	N	E	I	N	
21.	Feelings and emotions, for example, appreciations and satisfaction.	☐	☐	☐	☐	☐	☐	(26)
22.	Mores, customs,and standards of conduct	☐	☐	☐	☐	☐	☐	(27)
23.	Perceptual awareness and perceptions of self, others, and things	☐	☐	☐	☐	☐	☐	(28)
24.	Physical fitness, traits, and health	☐	☐	☐	☐	☐	☐	(29)
25.	Adventurousness and initiative	☐	☐	☐	☐	☐	☐	(30)
		E	I	N	E	I	N	
26.	Autonomy and independence	☐	☐	☐	☐	☐	☐	(31)
27.	Dependability and responsibility	☐	☐	☐	☐	☐	☐	(32)
28.	Dogmatism-openmindedness; authoritarianism-egalitarianism	☐	☐	☐	☐	☐	☐	(33)
29.	Flexibility and adaptability	☐	☐	☐	☐	☐	☐	(34)
30.	Habits	☐	☐	☐	☐	☐	☐	(35)
		E	I	N	E	I	N	
31.	Psychological functioning	☐	☐	☐	☐	☐	☐	(36)
32.	Tolerance and persistence	☐	☐	☐	☐	☐	☐	(37)
33.	Completion or achievement award	☐	☐	☐	☐	☐	☐	(38)
34.	Credit recognition	☐	☐	☐	☐	☐	☐	(39)
35.	Economic access, independence, and productivity	☐	☐	☐	☐	☐	☐	(40)
		E	I	N	E	I	N	
36.	Image, reputation, or status	☐	☐	☐	☐	☐	☐	(41)
37.	Licensing and certification	☐	☐	☐	☐	☐	☐	(42)
38.	Obtaining a job or admission to a follow-up program	☐	☐	☐	☐	☐	☐	(43)
39.	Power and/or authority	☐	☐	☐	☐	☐	☐	(44)
40.	Job, school, or life success (other than above)	☐	☐	☐	☐	☐	☐	(45)
		E	I	N	E	I	N	
41.	Adjustment to retirement	☐	☐	☐	☐	☐	☐	(46)
42.	Affiliations	☐	☐	☐	☐	☐	☐	(47)
43.	Avocational and social activities and roles	☐	☐	☐	☐	☐	☐	(48)
44.	Career and vocational activities and roles	☐	☐	☐	☐	☐	☐	(49)
45.	Citizenship activities and roles.	☐	☐	☐	☐	☐	☐	(50)
		E	I	N	E	I	N	
46.	Family activities and roles	☐	☐	☐	☐	☐	☐	(51)
47.	Friendships and relationships	☐	☐	☐	☐	☐	☐	(52)
48.	New knowledge and understanding from research and scholarship	☐	☐	☐	☐	☐	☐	(53)
49.	Research and scholarship products	☐	☐	☐	☐	☐	☐	(54)
50.	Production or preservation of art forms and works	☐	☐	☐	☐	☐	☐	(55)
		E	I	N	E	I	N	
51.	_____	☐	☐	☐	☐	☐	☐	(56)
52.	_____	☐	☐	☐	☐	☐	☐	(57)
53.	_____	☐	☐	☐	☐	☐	☐	(58)
54.	_____	☐	☐	☐	☐	☐	☐	(59)
55.	_____	☐	☐	☐	☐	☐	☐	(60)

NOTE: IF YOU ARE UNSURE WHAT ANY OF THE ABOVE OUTCOME CATEGORIES MEAN, DEFINITIONS AND EXAMPLES ARE PROVIDED IN THE MANUAL FOR THE STUDENT LEARNING OUTCOMES QUESTIONNAIRE, AVAILABLE FROM THE CAMPUS COORDINATOR FOR THIS STUDY.

For items 56-60, choose one of the outcome categories that you rated "essential" and which you have thought most about prior to this time. Indicate this category in the large box below:

	(62-63)

Now try to think of five specific and concrete outcomes for the students of concern that you would consider especially important for this outcome category, and record them in the blanks provided for Items 56-60. For example, "beliefs, commitments, and philosophy of life" could include: developing student commitment to the discipline; helping students clarify their philosophies of life so that they become coherent, systematic, and internally consistent; helping students incorporate coursework into their philosophy of life; helping students internalize a particular proposition; and demonstrating commitment through action.

56. _____

57. _____

58. _____

59. _____

60. _____

For Items 61-65, choose one of the outcome categories that you rated "essential" but which you have thought the least about prior to this time. Indicate this category in the large box below:

	(64-65)

Now, try to think of five specific and concrete outcomes for the students of concern that you would consider especially important for this outcome category.

61. _____

62. _____

63. _____

64. _____

65. _____

Just because an outcome towards which an institution or program is striving and planning has high priority, there is no guarantee that any success will occur--that the outcome will happen. And in this "age of accountability" there are increasing pressures for documentation that the outcomes colleges and programs say they are bringing about have in fact occurred. In the blanks provided below for Items 56a-65a indicate some observations or measures (including self-report measures, but not limited to them) that you feel would constitute major concrete evidence that the particular learning outcome you identified in Items 56-65 as having priority are, in fact, occurring or did occur (for example, judges' ratings, score on a particular test or exam, observed actions or reactions to carefully planned stimuli, increased attendance at certain types of campus events, written papers, and observing an oral demonstration by the student):

56a. _____

57a. _____

58a. _____

59a. _____

60a. _____

61a. _____

62a. _____

63a. _____

64a. _____

65a. _____

In the blanks provided below for Items 56b-65b, identify some specific student activities and experiences you especially think would contribute to the realization of the particular student outcomes that you identified in Items 56-65 (for example, peer tutoring, participation in political campaigns, community service projects, organized in-class confrontation debates of selected issues, and small discussion groups):

56b. _____

57b. _____

58b. _____

59b. _____

60b. _____

61b. _____

62b. _____

63b. _____

64b. _____

65b. _____

Age and sex groupings have often been found helpful in interpreting survey data. For Items 66 and 67, please check (✓) the appropriate box.

66. What is your sex?

☐ 1 Female ☐ 2 Male (66)

67. What is your age:

☐ 1 Under 25 ☐ 2 25-35 ☐ 3 36-50 ☐ 4 Over 50 (67)

For students, what is your year in school?

☐ 1 Freshman ☐ 2 Sophomore ☐ 3 Junior ☐ 4 Senior ☐ 5 Graduate or Professional Student (68)

Modified Scenario for the
Role-Playing Session during the
CASC/NCHEMS On-Campus Workshop

Roles

Nick Knocks — College President (Committee Chairperson)
Bill Grave — Vice-President for Finance
Mavis Learned — Vice-President for Academic Affairs
Eldrige Bridger — Vice-President for Student Affairs
Leroy Wowsm — Vice-President for Public Relations and Development
Fredrick O'Tool — Faculty representative
Mitzi Gainsmore — Student representative
Frank Memory — Alumni representative
Richard Green — Community leader and bank president

The Setting

The Jonathan Doe Foundation has made an offer to Alpha College to provide $250,000 of unsolicited funds for strengthening the on going program of the college during the coming year. The only requirements are that it be for items in addition to those currently budgeted for next year, that it *not* involve facilities procurement or capital investment, and that the college notify the foundation within six months exactly what the money will be used to do (if the college does not meet this requirement, the money will revert to one of the foundation's other charities).

Upon receiving word of the good news, Alpha College's Board of Trustees directed President Knocks to present them in three months with a priority list of student educational outcomes that the college should especially strive to improve, and recommendations for funded supplemental activities and for materials to bring about the desired improvements during the coming year. In response to this request, President Knocks of Alpha formed a nine-member committee representing the major groups and areas of concern on campus, with himself as chairperson. In addition, an announcement was made to the campus community that anyone interested could sit in on the meeting as an observer. (If an observer felt strongly enough about something being discussed, however, they would be allowed to pass their insight or concern on to the committee in a brief fashion.)

At the committee's first meeting last week they discussed a new Outcomes Structure designed to help colleges decide on appropriate outcomes for their campus. They decided that special areas of concern were: aspirations; competence and skills; morale, satisfaction, and affective characteristics; perceptual characteristics; and psychological adjustment characteristics. *They also decided that at their next meeting they would focus on developing a priority list of concrete competence and skill outcomes,* along with ways of improving those concrete outcomes. It was also decided that *any* discussion about the other four outcome areas would have to wait until later meetings of the group. President Knocks is just now calling their second meeting to order.

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